SIEMENS

MammoReport^{Plus}

SP

System Manual

Calibration of Monitors

using SMfit ACT 3.1/3.2 or
MediCal Pro 2.3.10

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Register 3
Print No.: SPB7-420.820.20.02.02

English
Doc. Gen. Date: 06.05

Chapter	Page	Revision
All	All	02

Document revision level

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Purpose of document

The purpose of *MammoReport*^{Plus} *Calibration of Monitors* is to provide instructions on how to install the calibration software SMfit ACT or Medical Pro and perform the calibration of the two high-resolution displays. The quality tests done regularly by medical physicists/CSE or radiologists/technologists are described in the Quality Control Manual SPB7-420.621.20...

Target group

This manual is intended for customer support engineers.

Training of customer support engineers

The instructions in this guide describes the calibration of

- Siemens CRT monitors
- Siemens TFT monitors
- Barco TFT monitors

Due to the technology used in this equipment the setup, service and maintenance is only allowed to be performed by a customer support engineer with proper training in these fields.

Required documents

Siemens CRT

- Quick Reference Guide, SMfit ACT, Automatic Calibration Tool, Release 3.1 (included in monitor calibration tools, referred to as *Quick Reference Guide*)
- Instruction Manual, SMfit ACT, Automatic Calibration Tool, Release 3.1 (included in monitor calibration tools, referred to as *Instruction Manual*)
- Instruction Manual, Siemens Serial Spotmeter
- Instruction Manual, Universal Serial Luminance Meter

Siemens TFT

- Quick Reference Guide, SMfit ACT, Automatic Calibration Tool, Release 3.2 (included in monitor calibration tools, referred to as *Quick Reference Guide*)
- Instruction Manual, SMfit ACT, Automatic Calibration Tool, Release 3.2 (included in monitor calibration tools, referred to as *Instruction Manual*)
- Instruction Manual, Siemens Serial Spotmeter
- Instruction Manual, Universal Serial Luminance Meter

Barco TFT

- Medical Pro *Installation and User Manual*

Required tools, measurement and auxiliary devices

NOTE	**All tools, measurement and auxiliary devices marked " * ", are listed along with their specifications in the STC (Service Tools Catalogue).**

For Siemens CRT Monitors

- Monitor calibration tools (order number 74 447 27), including:
  - SMfit ACT Version 3.1 (already installed), with Spotmeter, Cable, Foam and Tube
  - Quick Reference Guide (on CD)
  - Instruction Manual (on CD)
  - Serial Bus Configuration Kit

For Siemens TFT Monitors

- SMfit ACT Version 3.2 (contained on MammoReport^{Plus} Installation DVD) with Spotmeter, Cable, Foam and Tube
  - Instruction Manual (on Installation DVD)

Optional Tools

- Universal Serial Luminance Meter (order number 8676418)
- Serial interface cable (Null Modem cable #99 00 440)

For Barco Monitors

- MediCal Pro version 2.03.10 (contained on MammoReport^{Plus} Installation DVD)
- Installation and User Manual (on Installation CD)
- Original MediCalPro CD (contain the license string)

Time required

The calibration of the MammoReport^{Plus} workstation requires approximately 1 hour for one CSE.

Safety information and protective measures

The product specific safety information contained in this document, as well as the general safety information must be observed, see document Safety Information TD00-000.860.01...

NOTICE	**Be aware of that this product is intended to be used in a non-patient environment.**

Writing conventions

Text emphasis

⚠WARNING	**WARNING indicates a risk of danger that may lead to death or to serious physical injury.**
⚠CAUTION	**CAUTION used with the safety alert symbol indicates a risk of danger that leads to slight or moderate physical injury and/or damage to property.**
NOTICE	**NOTICE used without the safety alert symbol indicates a risk of danger that if disregarded leads or may lead to a potential situation which may result in an undesirable result or state other than death, physical injury or damage to property.**
NOTE	**NOTE contains information provided with special emphasis to facilitate proper use of the equipment or proper execution of a procedure, i.e. hints, tips.**

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Prerequisites

NOTE	**The two monitors must be turned on 30 minutes before the calibration procedure starts.**

NOTE	**SMFit Act 3.1 is already installed on the workstation.**

Operating Modes

Launching SMfitACT

1. Reboot the system (without Shift key pressed)
2. Login to syngo as user “Administrator”.
3. Click with the right mouse button on the SMfit ACT Tray Icon in the Taskbar and choose the function “Start SMfit ACT”

NOTE	**If SMfit ACT is started over Start / Programs, a message box with the information that SMfit ACT is already running pops up. Please follow the instructions for an successful program launch.**

Service Level 1 and 2

NOTE	**The first time SMfit ACT is started, Service Level 2 must be selected for properly establishing preferences.**

After installation the program starts automatically with the *Login* window.

1. Select Service Level 2 and type in the valid password. Then press **Enter**.

Fig. 1 SMfitACT Login window

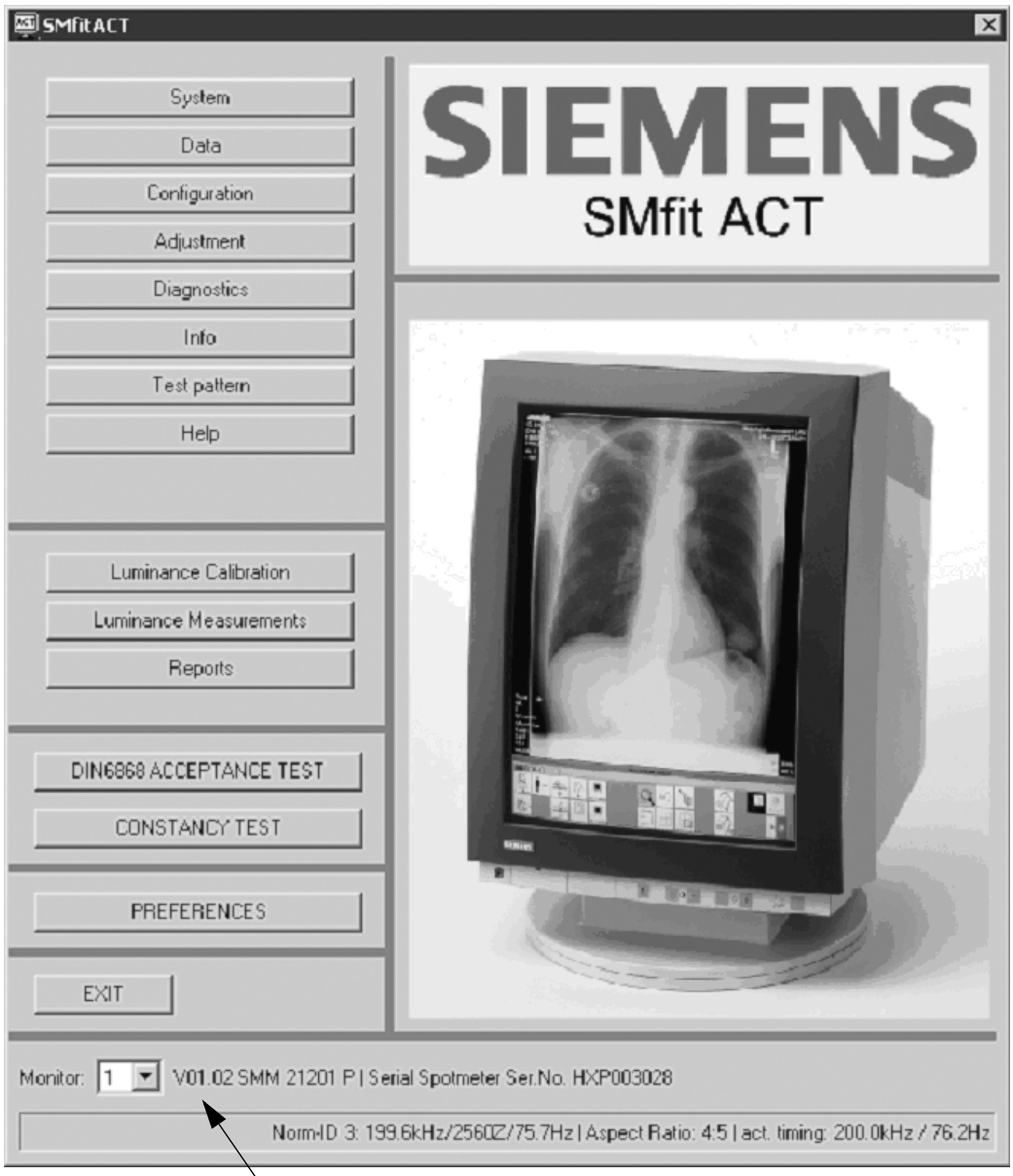
After starting SMfit ACT the Performance level has to be selected.

- With the Service Level 2 are all functions of the program available.
- The Service Level 1 allows only basic adjustments.
- The Service Level 2 is only for trained service staff and needs a password.

Getting Started

When starting SMfit ACT, the *SMfit ACT Main window* appears. It contains all the available functions once the preference folder is created.

1. To select a menu item, simply click the menu button and a submenu will appear with all the functionality available within this section.



This status line offers information about the connected monitor and the Serial Spotmeter. If the syngo monitor is turned off, Monitor 1 is the right of the two High Resolution monitors.

Fig. 2 SMfitACT Main window

2. Click on **Preferences** to open the *Preferences* window to select a measurement device.

Preferences Settings

If SMfit ACT is started the first time and/or the monitor settings have changed, the preferences have to be defined.

NOTE	**Make sure that your serial bus addressing (R 610) is correct before starting the preferences' setting.**

In the main menu box, with “Preferences”, you access to the “Preferences” menu and its different tabs.

Measurement Device Menu

1. In the *Preferences* window click **Measurement Device** menu.
2. Select in Measurement Device menu>Device Type>**Serial Spotmeter** as type.

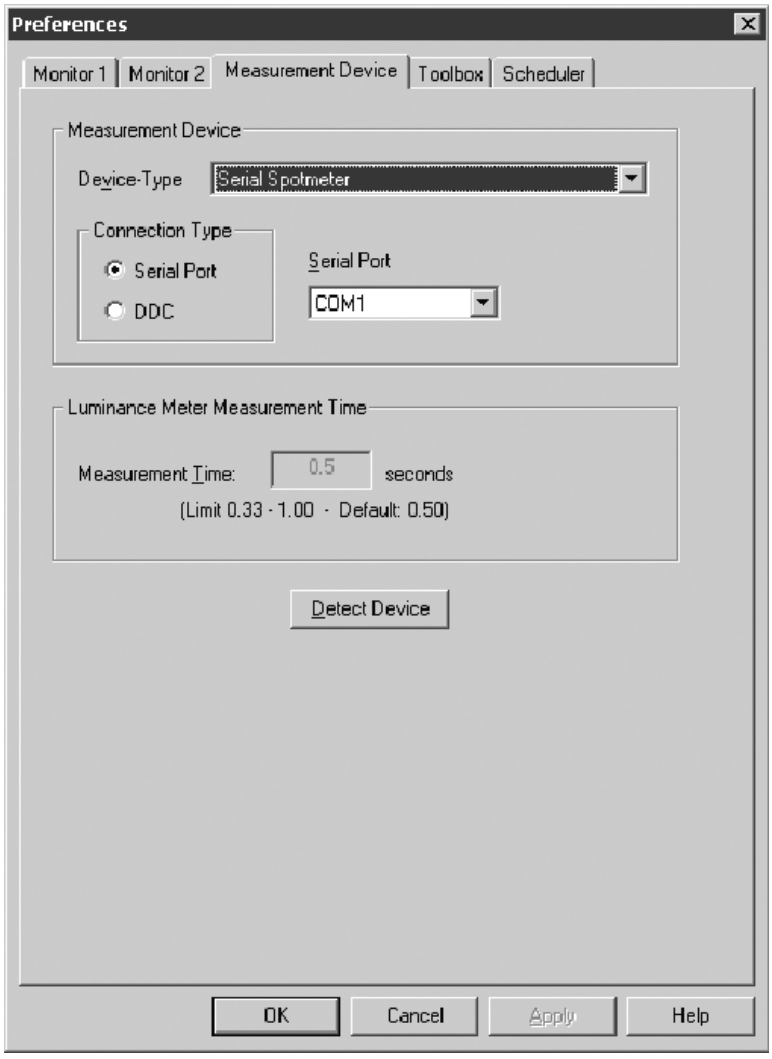


Fig. 3 Selecting Device Type

3. Check that the serial cable is connected.

4. Then click **Detect Device**.
   The *Autodetection* window appears.

Fig. 4 Autodetection running

Serial Bus Connection

The Serial Bus connection is used for a R 610 computer. The following section summarizes the Serial Bus Configuration from the Instruction Manual.

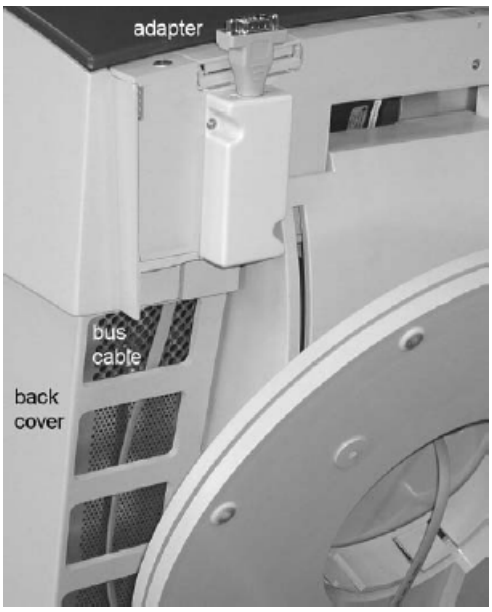


Fig. 5 Using the adapter and leading the bus cable into back cover

NOTE	**Only use original adapter from the serial bus kit.**

Bus configuration with the monitor SMM 21201 P

The sockets of the serial bus input and the serial bus output of the monitor SMM 21201 P are located on the video amplifier.

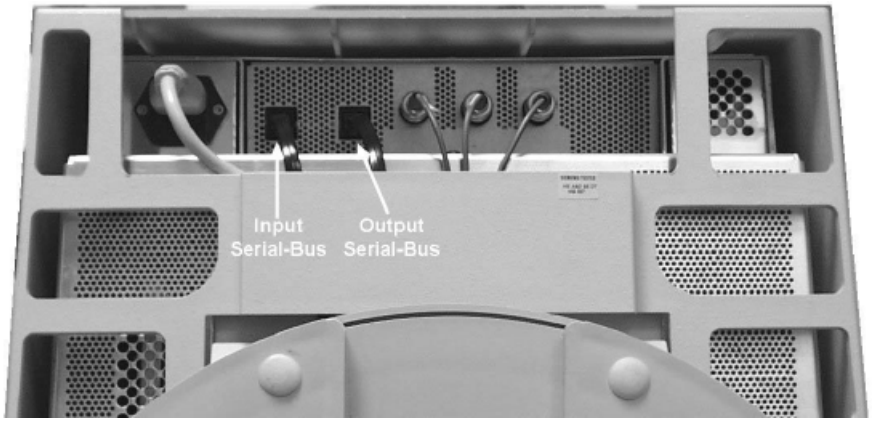


Fig. 6 Socket assembly of SMM 21201 P

1. Connect the monitors as described before, but use the sockets on the video amplifier to connect the first monitor with the computer and to chain the monitors.

IMPORTANT

- Check 50 Ohm jumper setting, (back of monitor SMM21201P).
- SMM21201P Monitors as spare parts come from the factory (Karlsruhe) with 75 Ohm setting and not with 50 Ohm, it concerns all spare parts.
- SMM21201P Monitors come with the correct setting of 50 Ohm with a new MammoReport System.

Fig. 7 Serial bus configuration of SMM 21201 P

1. Lead the cables through the tilt & swivel base and the back cover (see cable leading of other monitor types, Figure 12). To fix the connection box to the operating panel, use the full length of the cable stored in the connection box.

Assigning the Bus Address

The Bus Address of each monitor has to be defined with the function ‘Bus Address’ which can be found in the “System” Menu of SMfit ACT. To use this function a serial connection between service computer and the front RS 232 port of the monitor is necessary.

1. Disconnect the RS 232 (Serial Bus cable) from your computer. Use a serial interface cable for connecting the RS 232 of your computer (COM 1) to the monitor’s RS 232 port. The RS 232 port is located on the front side of the monitor under the flap of the operating panel. It must be opened using the supplied tool or a screwdriver.

Change of Serial Bus Address

1. Connect Null Modem Cable in front of Monitor 1 (right) with CPU.
2. Click **Check Connection**.

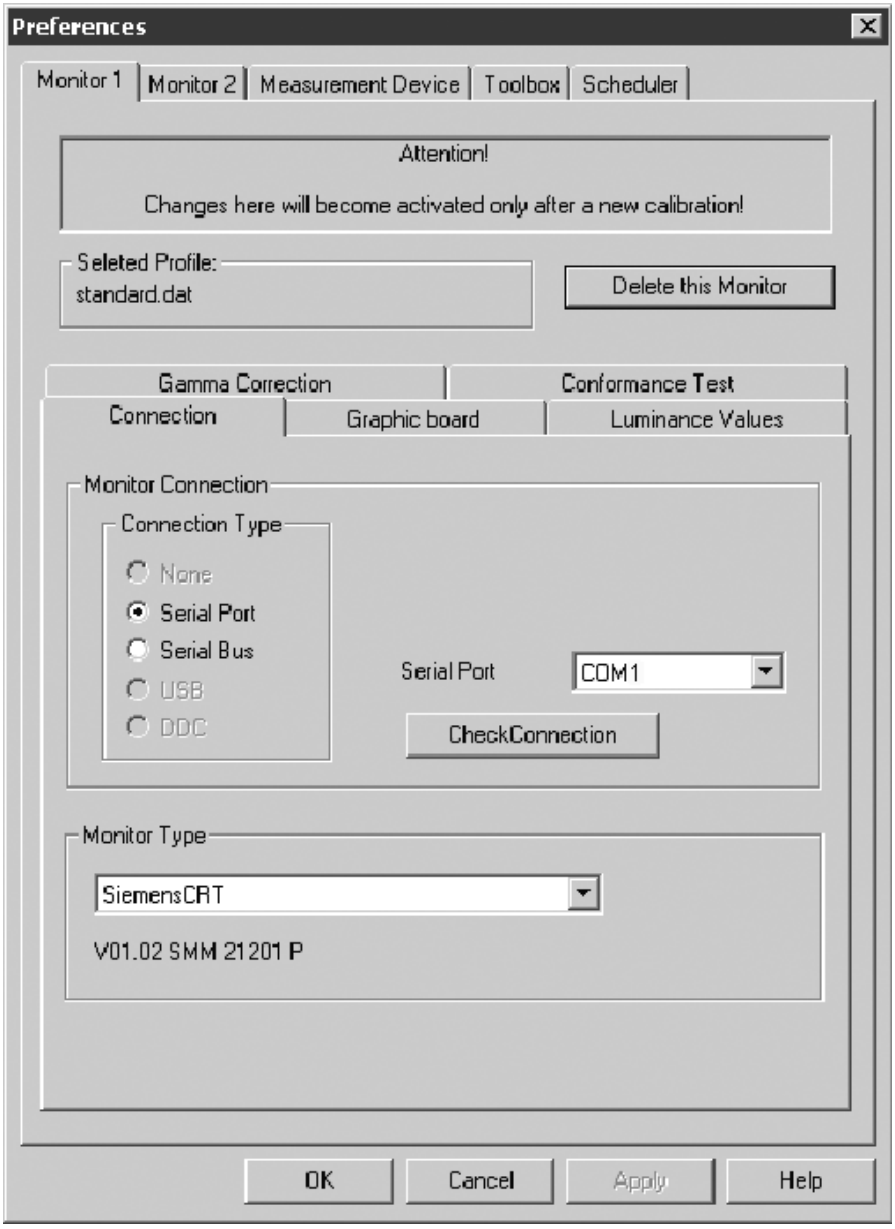


Fig. 8 Preferences of Monitor 1

Fig. 9 Check Connection Message

3. Click **OK**.
4. Go to **System** menu.

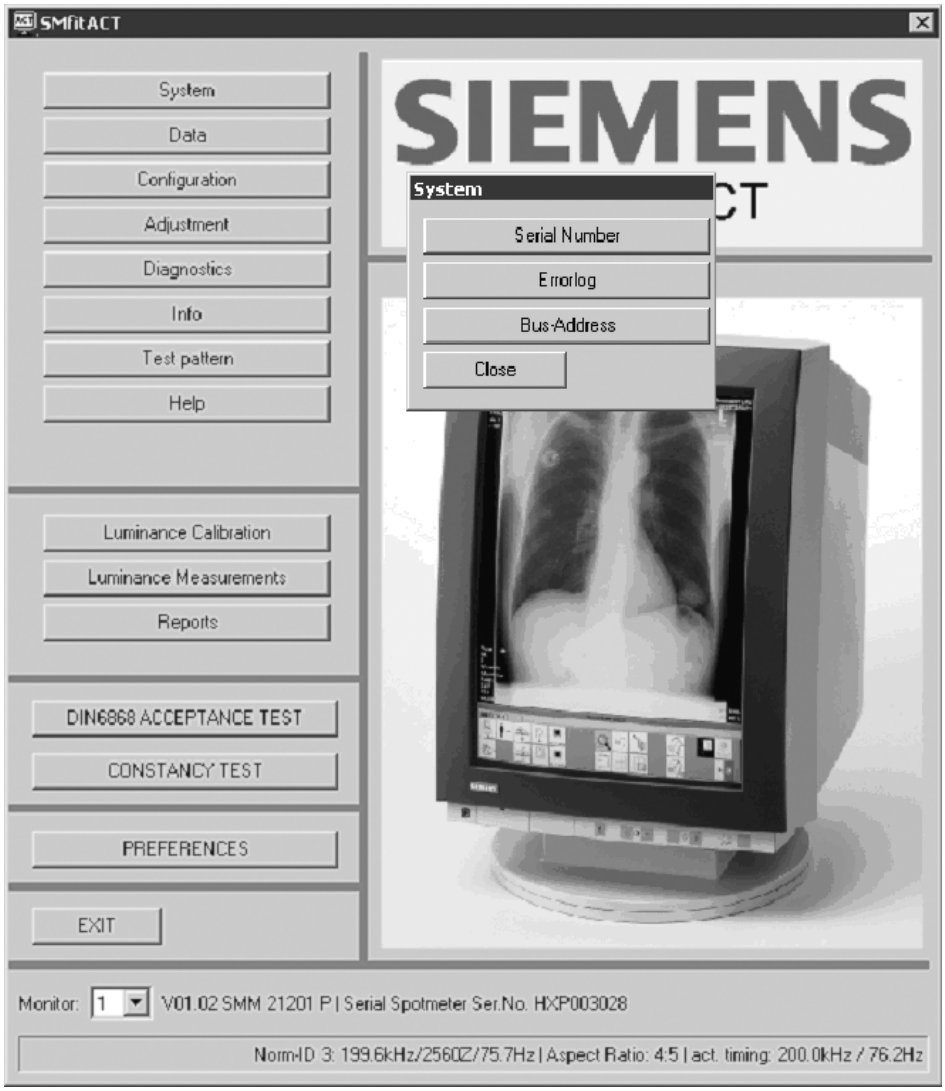


Fig. 10 System Menu

5. Select **Bus-Address**.

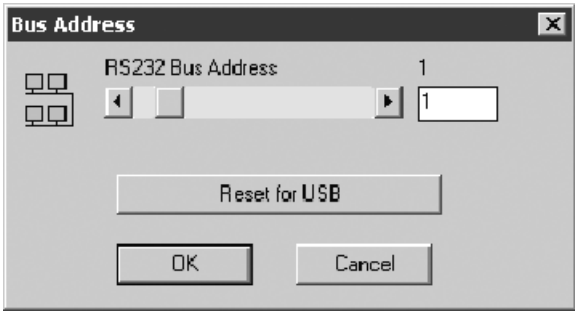


Fig. 11 Bus address of Monitor 1

6. Select **Bus Address**: 1 for right Monitor
7. Click **OK**.
8. Disconnect Null Modem Cable of Monitor 1.

9. Connect Null Modem Cable in front of Monitor 2 (left) with CPU.

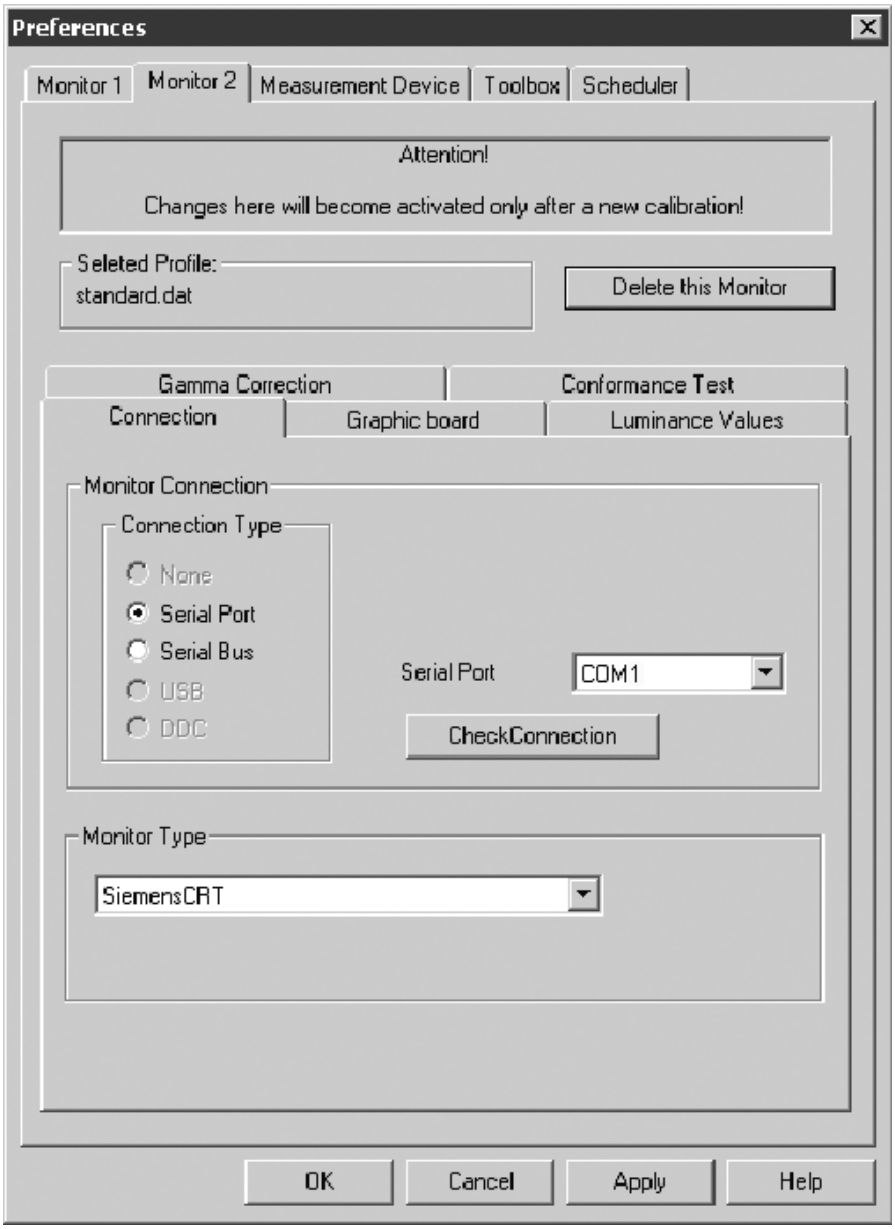


Fig. 12 Preferences of Monitor 2

10. Select manual Monitor Type: SiemensCRT.

Fig. 13 Check Connection Message

11. Click **OK**.

12. Go to **System** menu (see Fig. 10).

13. Select **Bus-Address**.

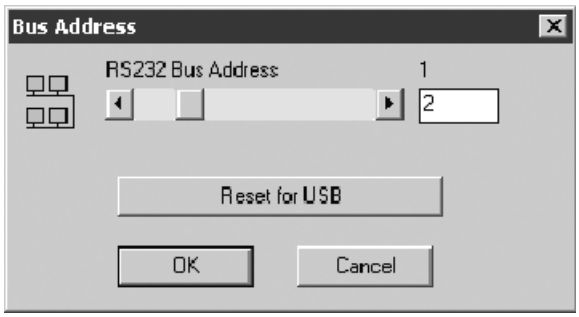


Fig. 14 Bus address of Monitor 2

14. Select Bus Address: 2 for left Monitor
15. Click **OK**.
16. Disconnect Null Modem Cable of Monitor 2 and workstation.
17. Connect the Serial Bus Cable with the workstation.

Selecting Monitors via Preferences

1. Click on **Preferences** to open the *Preferences* window to select a monitor.

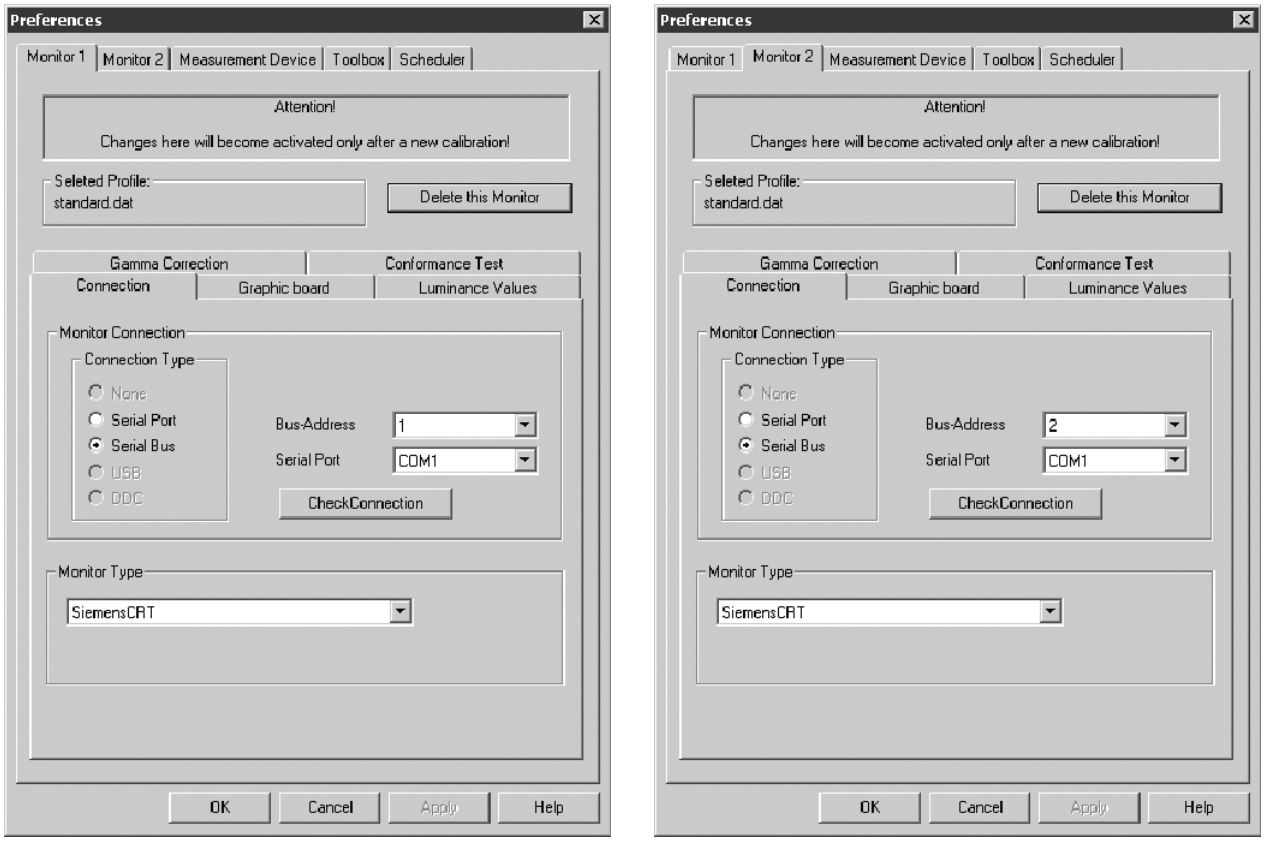


Fig. 15 Preferences: Serial Bus Connection of Monitor 1 (right) and Monitor 2 (left)

Toolbox Menu

In this menu you can perform an auto-detection of the profile.

1. In the *Preferences* window click **Toolbox** menu.
2. Select in Select Profile>**standard.dat**.
3. Then click **Autodetection**.

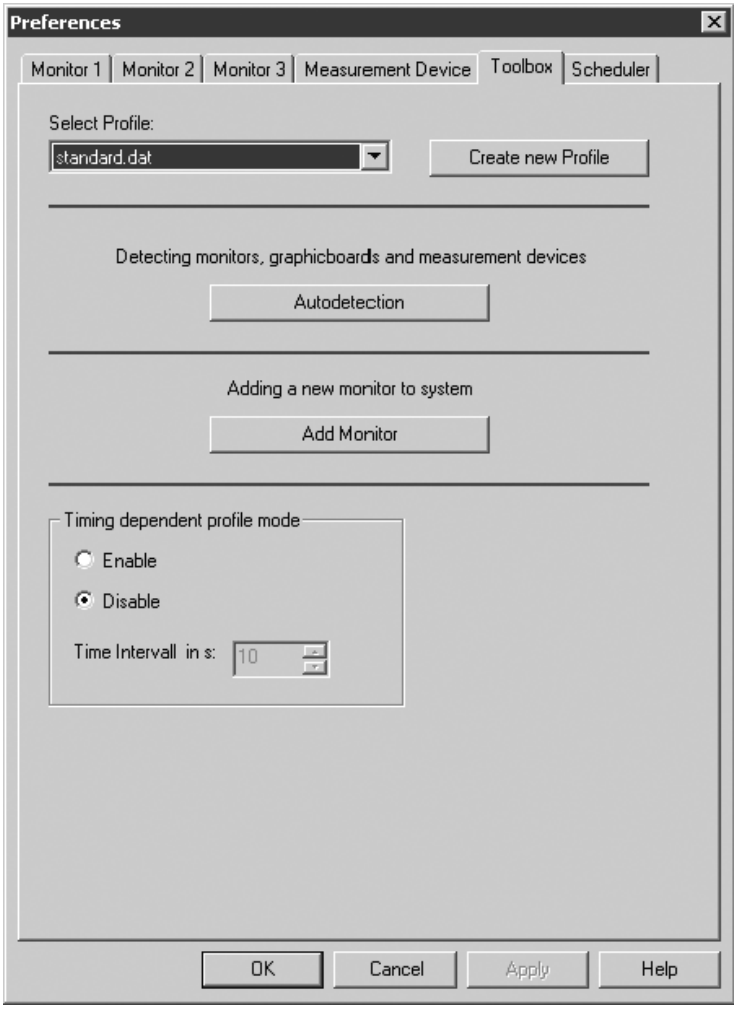


Fig. 16 Select Profile

4. After clicking on **Detected**, the following message appears:

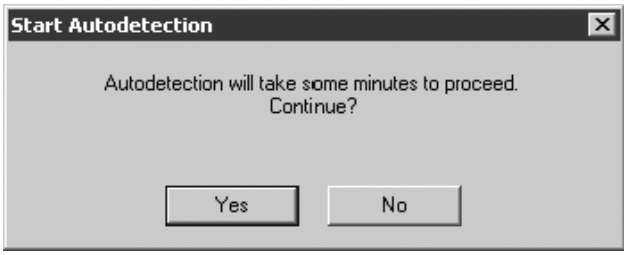


Fig. 17 Start Autodetection

5. Confirm Message with **Yes**.

Monitor Menu

1. In the *Preferences* window click **Monitor 2** menu.
2. The settings in the **Connection** menu should be as follows:

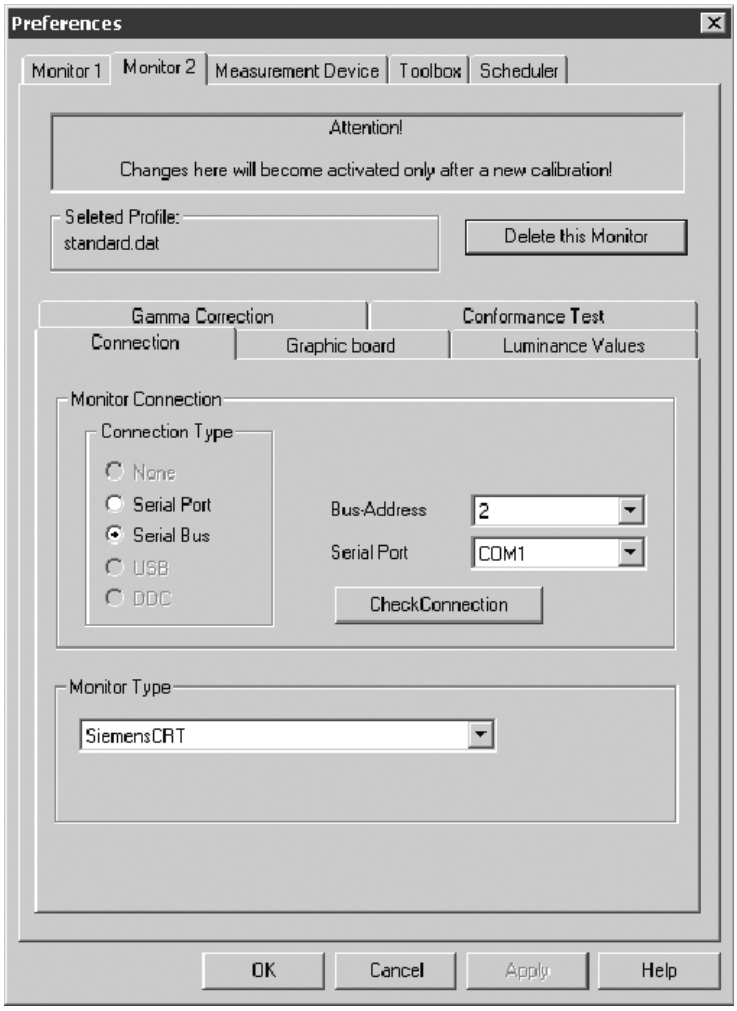


Fig. 18 Preferences of Monitor 2

NOTE	**The selection: “Serial Bus” is only for CRTs with a Serial Bus connection.**

3. Then click **Luminance Values** menu**.**

Luminance Values

1. Change values for Maximum Luminance to 300 cd/sqm.

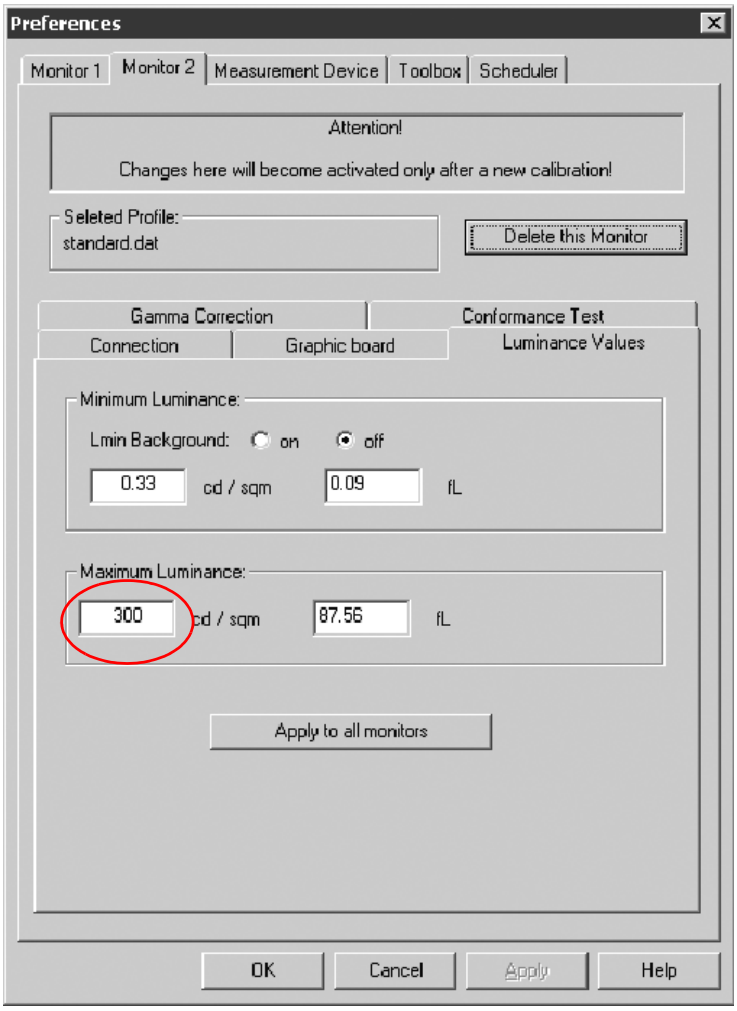


Fig. 19 Preferences of Monitor 2

2. Click **OK**.
3. Repeat first two steps for other high resolution monitor.

Conformance Test

With Conformance test, the numbers of base points of the Luminance Measurement for Conformance Test are defined. The default value is 33 points.

1. In the *Preferences* window click again **Monitor 2** menu.
2. In **Conformance Test** menu select values as follows:

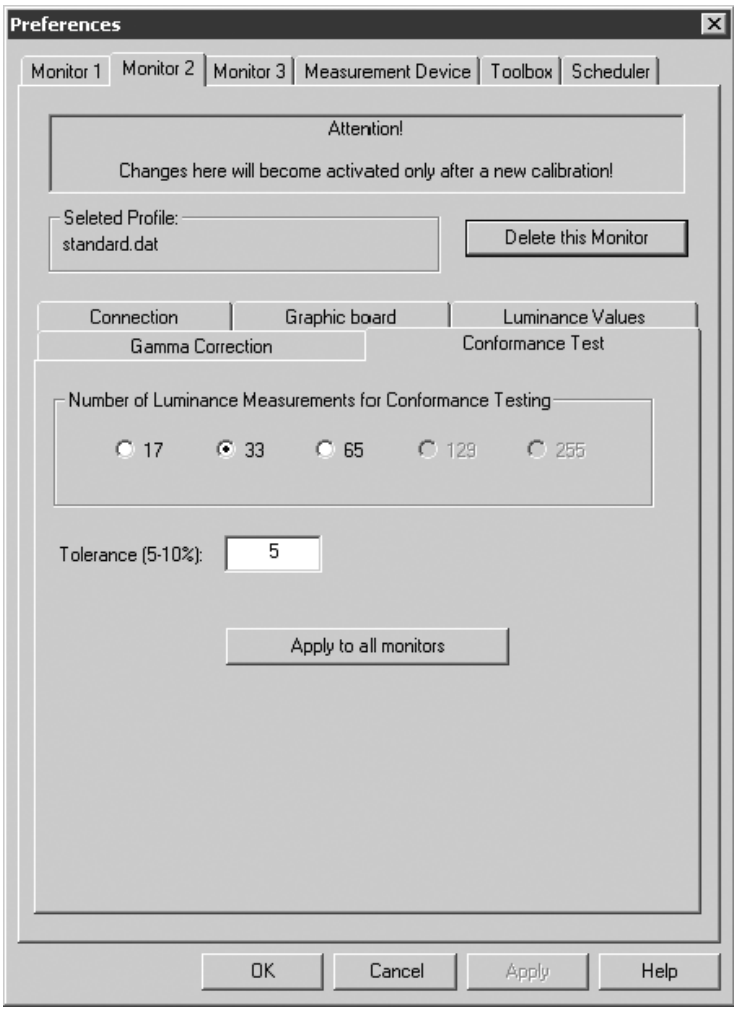


Fig. 20 Preferences of Monitor 2 - Conformance test

3. Click **OK**.
4. Repeat first three steps for other high resolution monitor.

Gamma Correction Menu

For these settings the Ambient Light value must be measured.

1. In the *SMfit ACT Main window* select **Luminance Measurement** submenu.

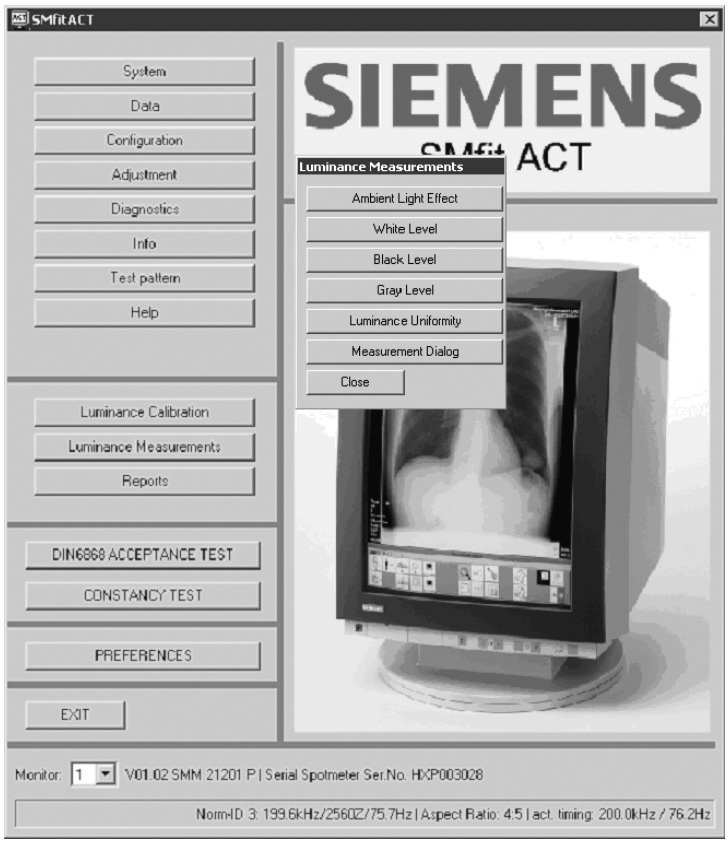


Fig. 21 SMfit ACT Main window - Luminance Measurement submenu

2. Click **Ambient Light Effect** to open the *Ambient Light Measurement* window.
3. Follow the instructions and click **Continue**.

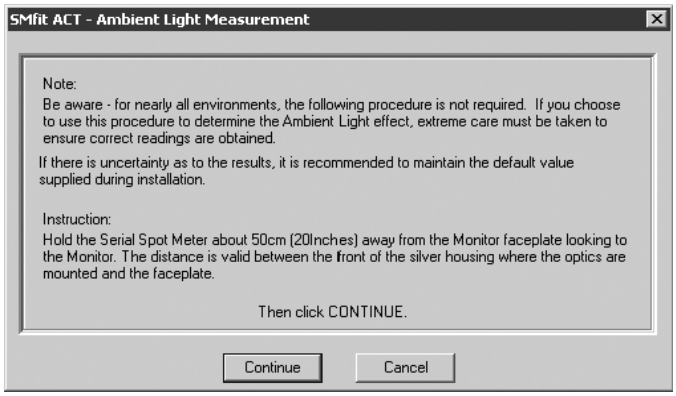


Fig. 22 Ambient Light Measurement window

4. Note the Ambient Light value. Then close the **Luminance Measurements** submenu.

5. In the SMfit ACT main window select **Preferences** to open the **Monitor 2** menu.
6. Open the **Gamma Correction** menu.
   This menu displays a list of selectable Gamma Models e.g:
   - DICOM Part 14 Grayscale Standard Display Function; calculates a gamma correction LUT according to DICOM standards.
7. In field *The Ambient light adjustment value for Gamma Lookup Table value* set value to as measured with the Spotmeter.

This value results from the measurement taken with the Spotmeter.

Recommendation is:
- Room with low ambient light below 10 lux
- Value: approx. 0.5

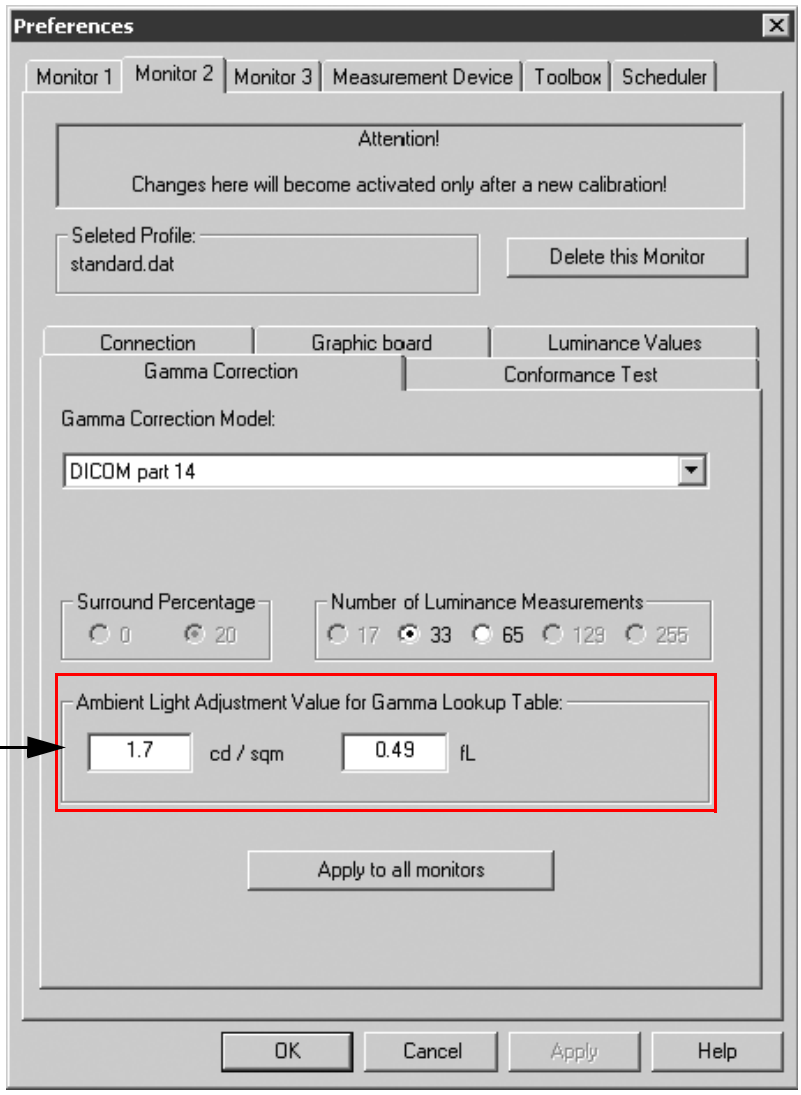


Fig. 23 Gamma Correction parameters

8. Click **OK**.
9. Repeat last two steps for other high resolution monitor.
10. Close the window.

Status Bar

The Status Bar on the bottom of the window displays information about the active monitor (example below: SMM 21201 P) and its configuration:

- If more than one monitor is available, the active monitor can be selected from the selection box.
- V01.02 refers to the version of the monitor firmware.
- The monitor type is listed next.

If the shipped Siemens Serial Spotmeter is connected and has been detected, ‘Serial Spotmeter, S-Nr: …’ appears.

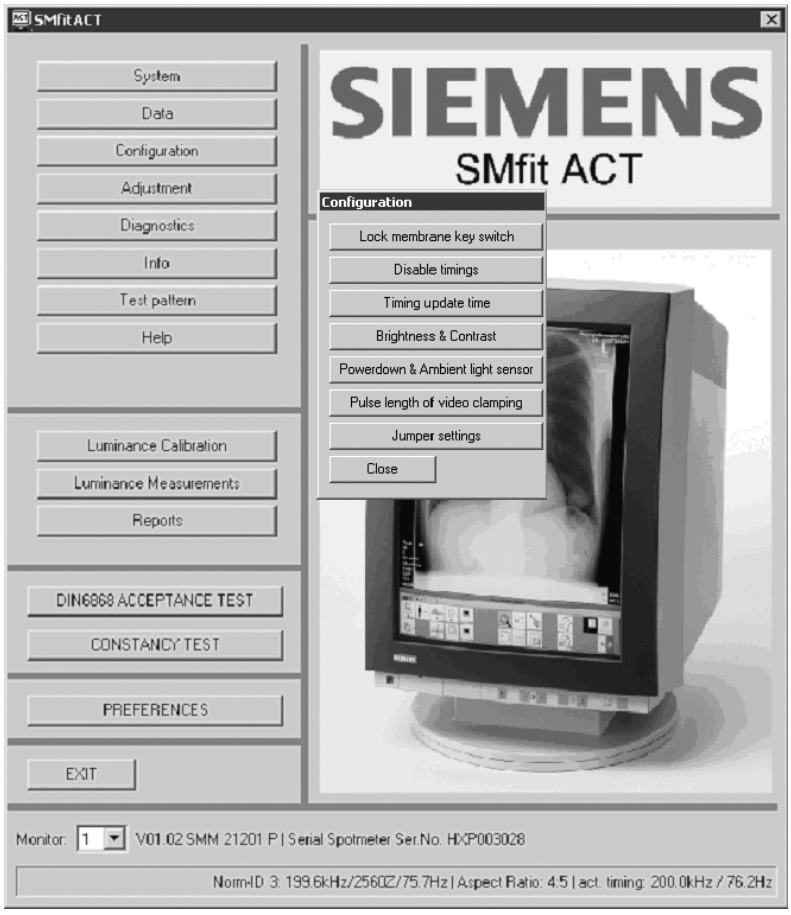


Fig. 24 Status bar example for SMM 21201 P

Prerequisites

NOTE	**Check the label on the back side of the high resolution monitors*. If more than one workstation is present and the monitors might have been interchanged, choose the two monitors with the smallest difference in X-values and also in Y-values.***

Log in as OS administrator

1. In the menu bar of the patient browser, click on **Options>End Session**.
2. Click **Restart System** button.
3. System shuts down and restarts. Log in as OS administrator (press Shift button while system reboots).

Installing SMfit ACT

The Installation program provides the correct installation under the Windows XP operating system. The SMfit ACT CD contains only one installation program.

For detailed information refer to chapter 4.0 “Installing SMfit ACT” in Instruction Manual of SMfit ACT Automation Calibration Tool, Release 3.2 or higher.

1. Insert the **MammoReportPlus Installation DVD for R610 Matrox TFT.**
2. Run **D:\SMfit_Act_V3.2\SMfit_ACT_calibration_V3.2\Program\setup.exe**.

Fig. 1 Enter Password

3. After entering the password and clicking **OK**, the *Welcome* window appears.
4. Click on **Next**.
5. The *License Agreement* window appears, click on **Yes.**
6. In the *Choose Destination Location* window, click on **Next** (default path).
7. In the *Select Components* window, click on **Next** (default).
8. In the *Select Program* folder choose default and click on **Next.** “Next” starts the installation and copies the files into the given folder.
9. In the *Setup Complete* window, click **Finish** to complete Setup. Don’t run SMFit Act

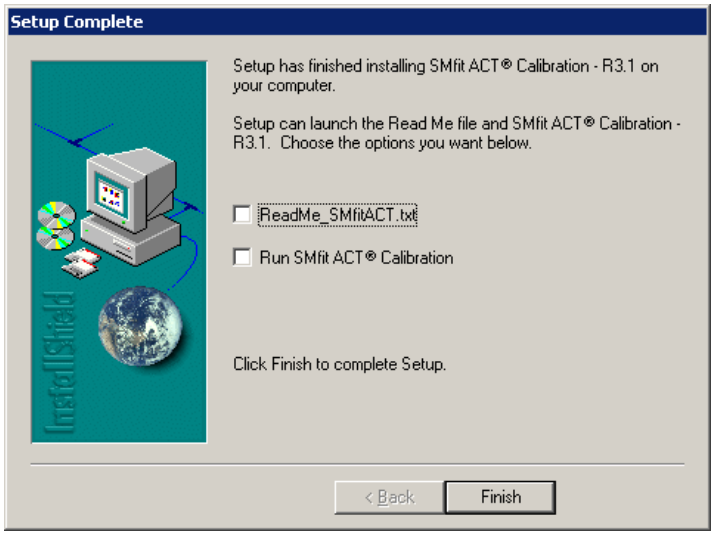


Fig. 2 Setup Complete window

Operating Modes

Launching SMfitACT

1. Reboot the system (without shift key pressed).
2. Login to syngo au user “Administrator”.
3. Click with the right mouse button on the SMfit ACT Tray Icon in the Taskbar and choose the function “Start SMfit ACT Calibration”.

NOTE	**If SMfit ACT is started over Start / Programs, a message box with the information that SMfit ACT is already running pops up. Please follow the instructions for an successful program launch.**

Service Level 1 and 2

After installation the program starts automatically with the *Login* window.

NOTE	**The first time SMfit ACT is started, Service Level 2 must be selected for properly establishing preferences.**

1. Select Service Level 2 and type in the valid password. Then press **Enter**.

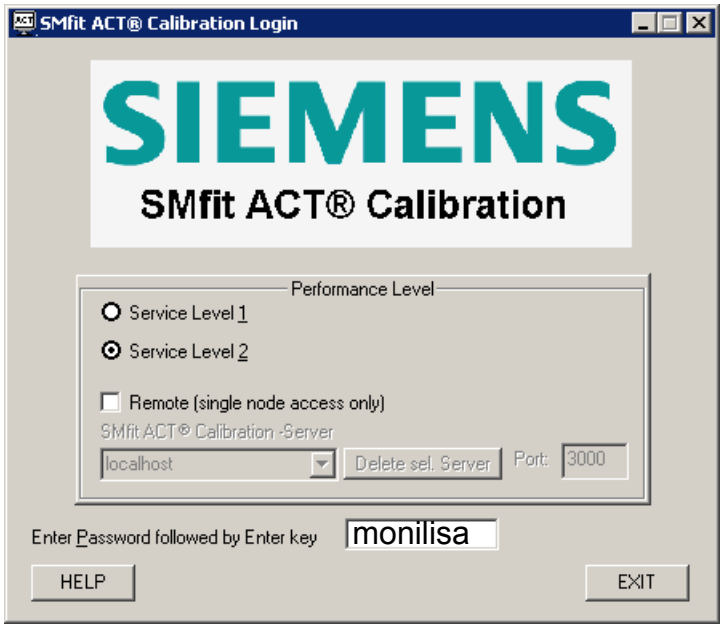


Fig. 3 SMfitACT Login window

After starting SMfit ACT the Performance level has to be selected.

- With the Service Level 2 are all functions of the program available.
- The Service Level 1 allows only basic adjustments.
- The Service Level 2 is only for trained service staff and needs a password.

Getting Started

When starting SMfit ACT, the *SMfit ACT Main window* appears. It contains all the available functions once the preference folder is created.

1. To select a menu item, simply click the menu button and a submenu will appear with all the functionality available within this section.

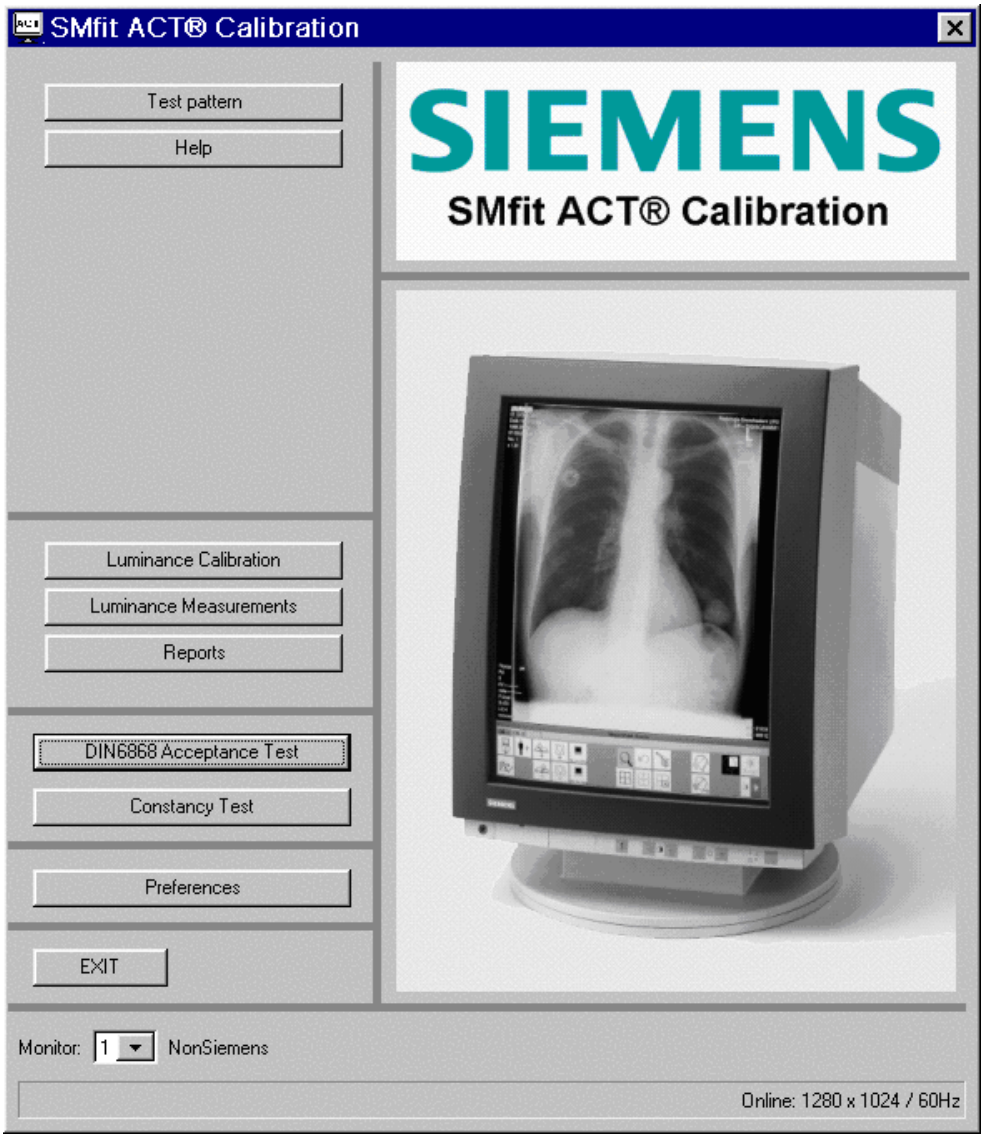


Fig. 4 SMfitACT Main window

2. Click on **Preferences** to open the *Preferences* window to select a measurement device.

Preferences Settings

If SMfit ACT is started the first time and/or the monitor settings have changed, the preferences have to be defined.

In the main menu box, with “Preferences”, you have access to the “Preferences” menu and its different tabs.

Measurement Device Menu

1. In the *Preferences* window click **Measurement Device** menu.
2. Select in Measurement Device menu>Device Type>**Serial Spotmeter** or **Serial Luminance Meter** as type.

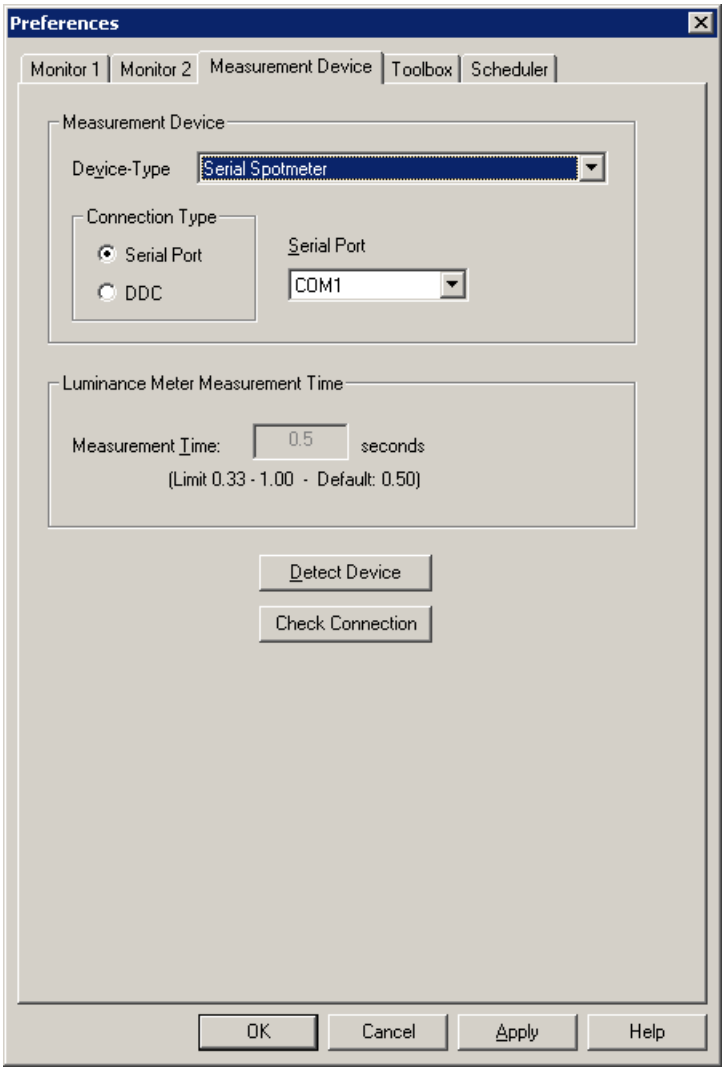


Fig. 5 Selecting Device Type

3. Check that the serial cable is connected.

NOTE	**Serial Spotmeter and Universal Serial Luminance Meter can also be connected to the DVI interface (Connection Type “DDC” in Fig. 5).**

4. Then click **Detect Device**.
   The *Autodetection* window appears. Autodetection may take up to 2 minutes if no device is connected.

Fig. 6 Autodetection running

NOTE	**If Autodetection fails, Serial Spotmeter or Universal Serial Luminance Meter must be configured manually.**

Toolbox Menu

In this menu you can perform an auto-detection of the profile.

1. In the *Preferences* window click **Toolbox** menu.
2. Create a new profile (e.g. TFTs.dat).
3. Select this profile.
4. Then click **Autodetection**.

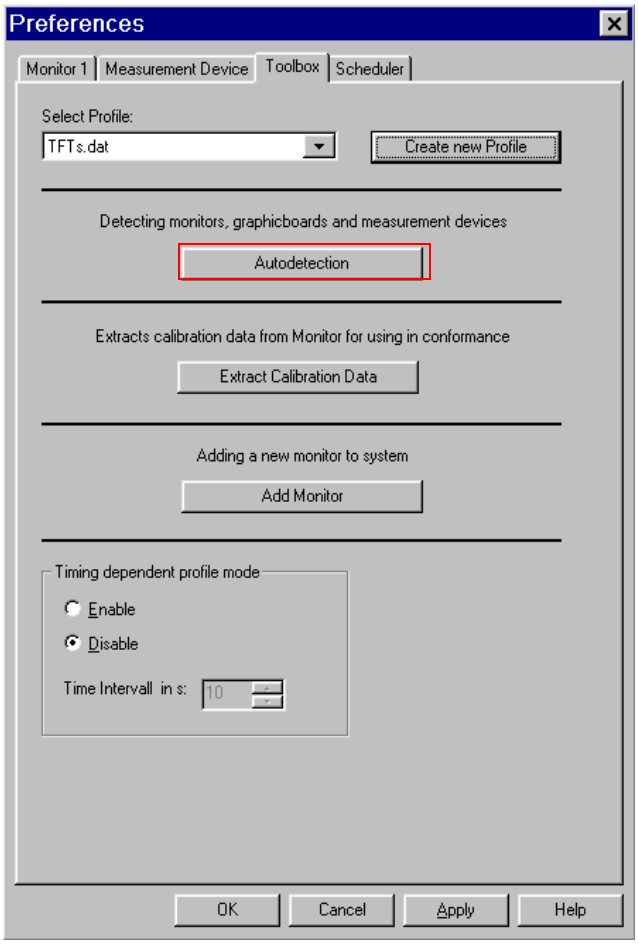


Fig. 7 Select Profile (Screenshot ändern)

5. A new window appears; select monitor types as shown and continue with autodetection. Click **Yes**.

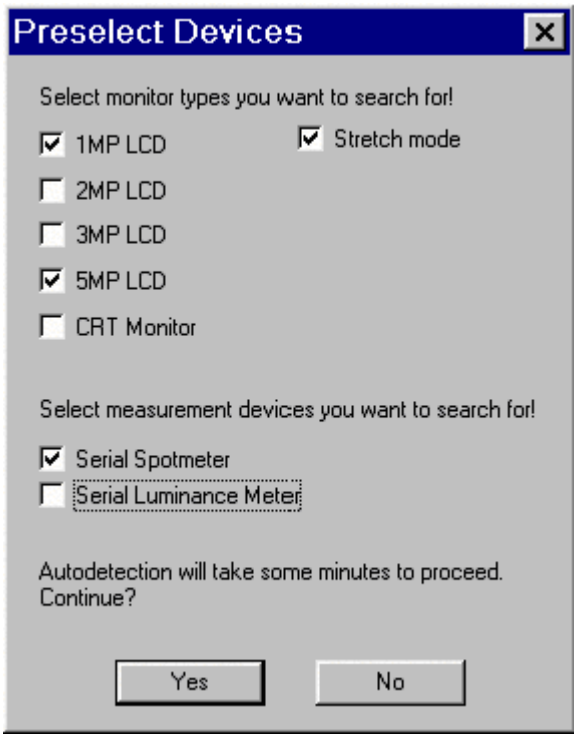


Fig. 8 Autodetection

6. A new message opens.

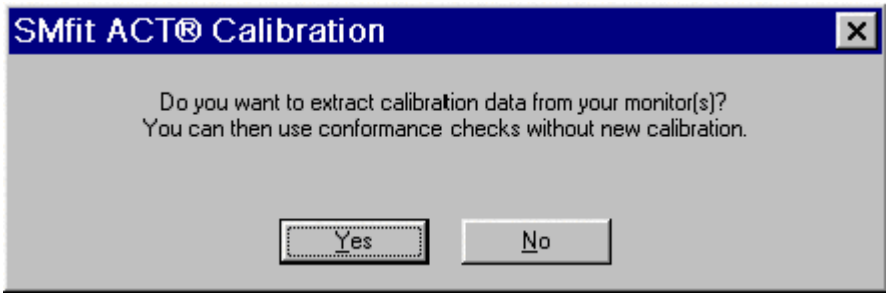


Fig. 9 Extract Message

7. Click **No**.

8. The Preferences Window opens again.
9. Select Tab **Monitor 1** and click on **Delete this monitor**.

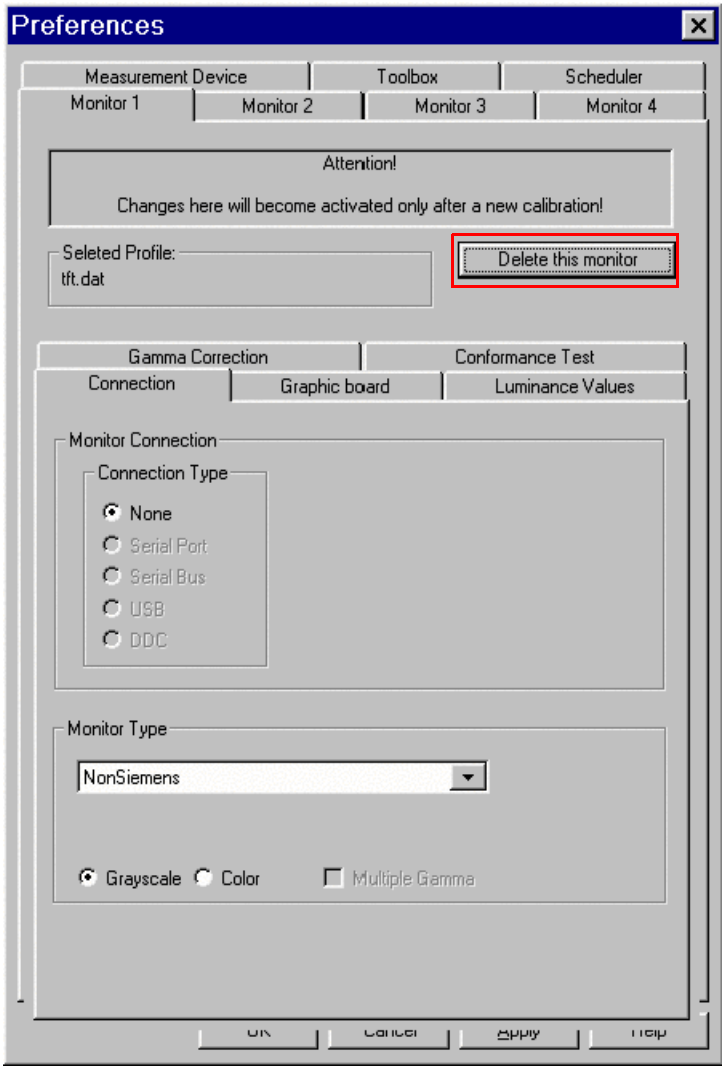


Fig. 10 Preferences of Monitor 1

Checking monitor connections

1. Click **Check Connection** in the Tab Monitor 2.

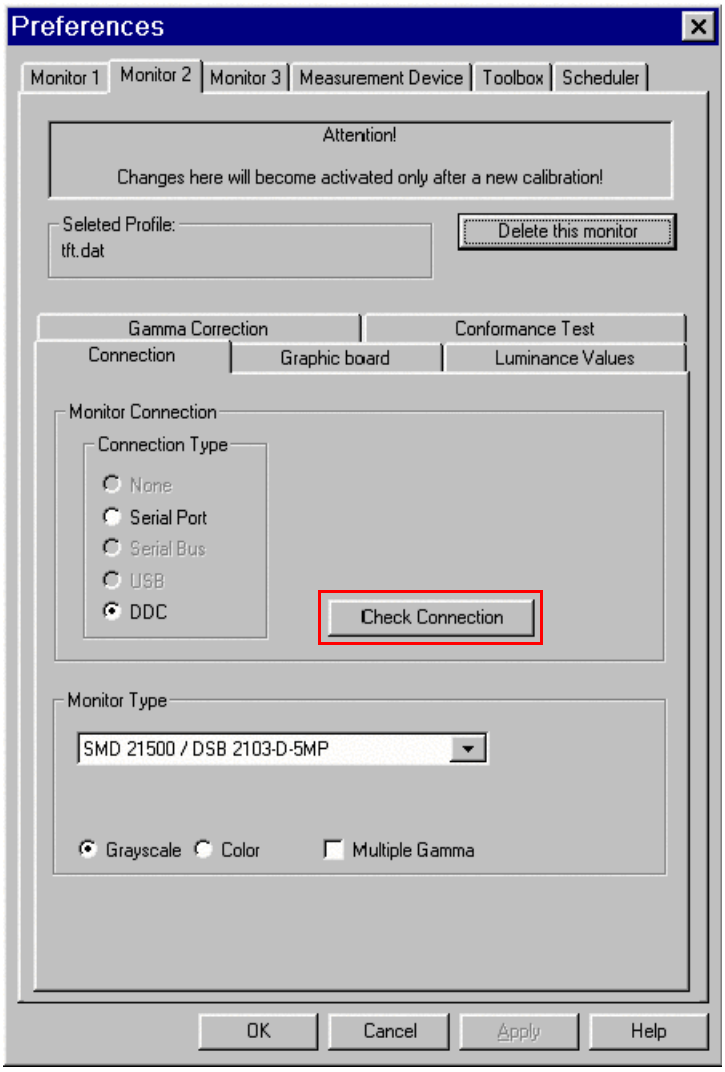


Fig. 11 Preferences of Monitor 2

Fig. 12 Check Connection Message

2. Click **OK**.
3. Repeat last two steps for other TFT monitor.

Selecting Monitors via Preferences

1. Click on **Preferences** to open the *Preferences* window to select a monitor. The settings in the **Connection** menu should be as follows:

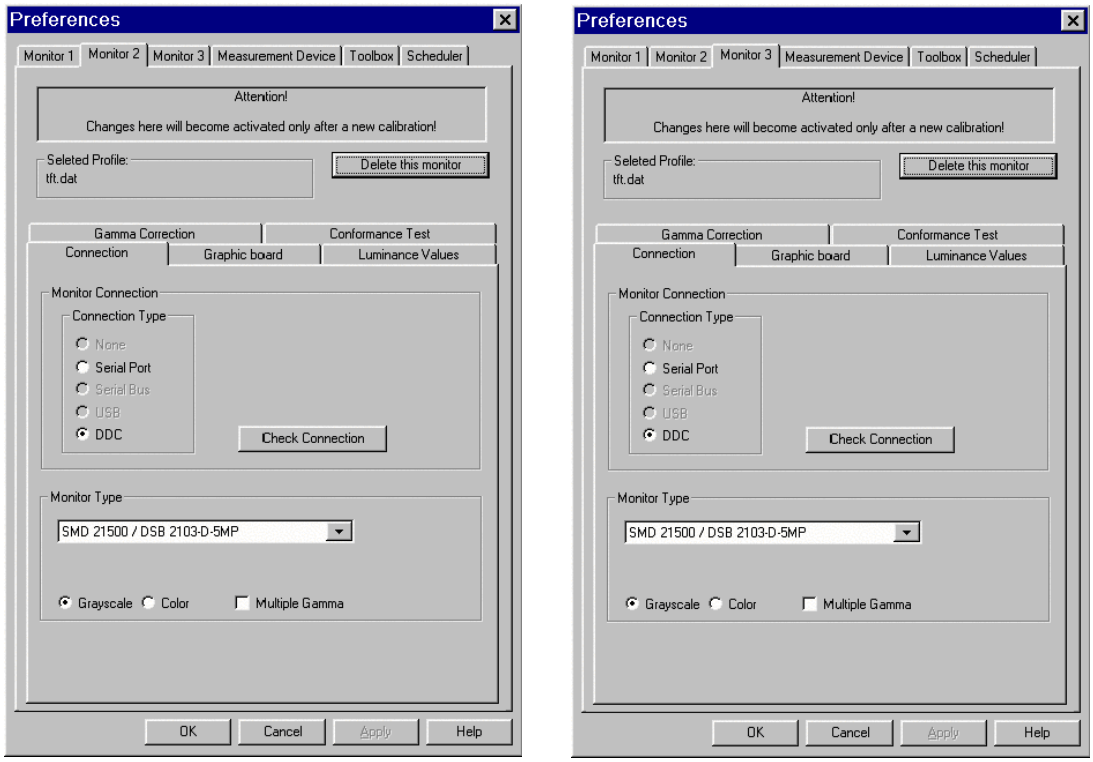


Fig. 13 Preferences: DVI Connection of Monitor 2 (left) and Monitor 3 (right)

2. Click on **Graphic board** to check the window display number settings.

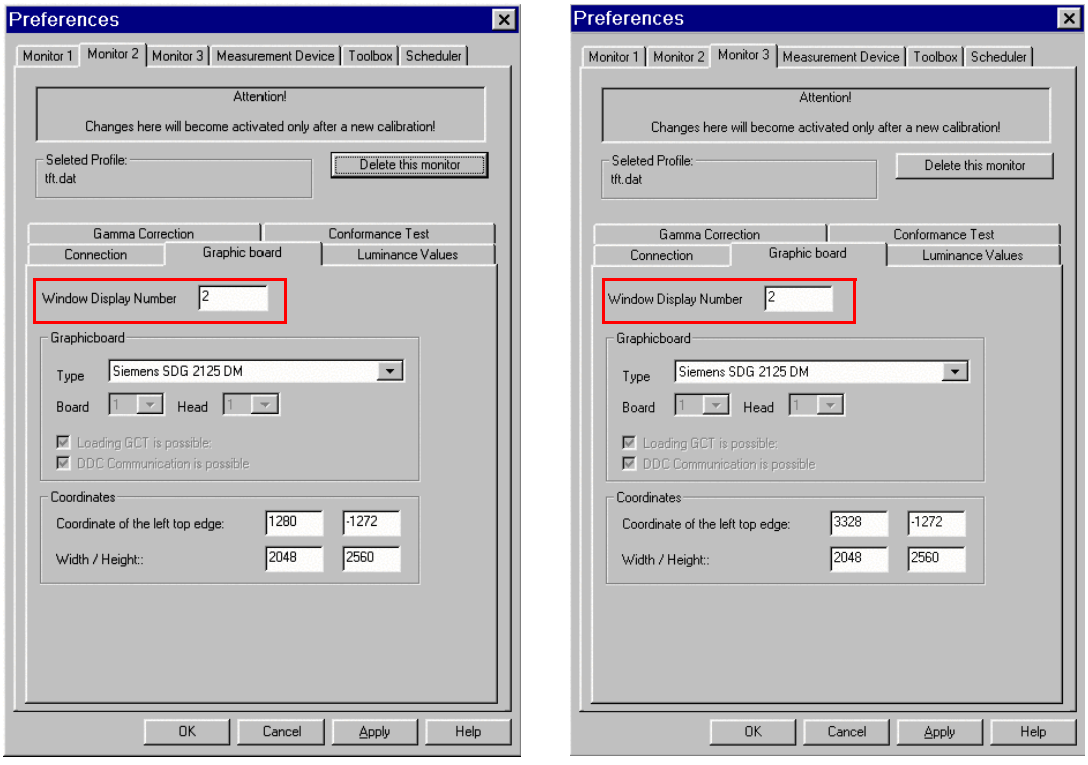


Fig. 14 Check of Window Display Number

Luminance Values

1. Click **Monitor 2** tab
2. Click **Luminance Values** menu
3. Set Minimum Luminance to “technical” and change values for Minimum Luminance to 1.0 cd/sqm and Maximum Luminance to 400 cd/sqm.

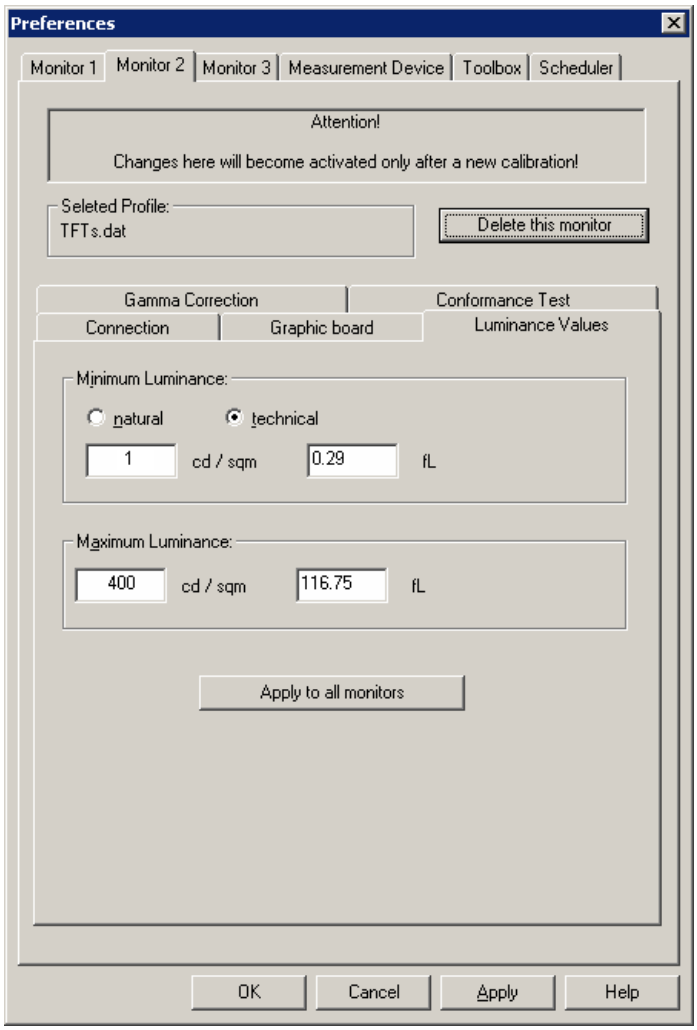


Fig. 15 Preferences of Monitor 2

4. Click **Apply**.
5. Repeat last three steps for Monitor 3.

Conformance Test

With Conformance test, the numbers of base points of the Luminance Measurement for Conformance Test are defined. The default value is 33 points.

1. In the *Preferences* window click again **Monitor 2** menu.
2. In **Conformance Test** menu select values as follows:

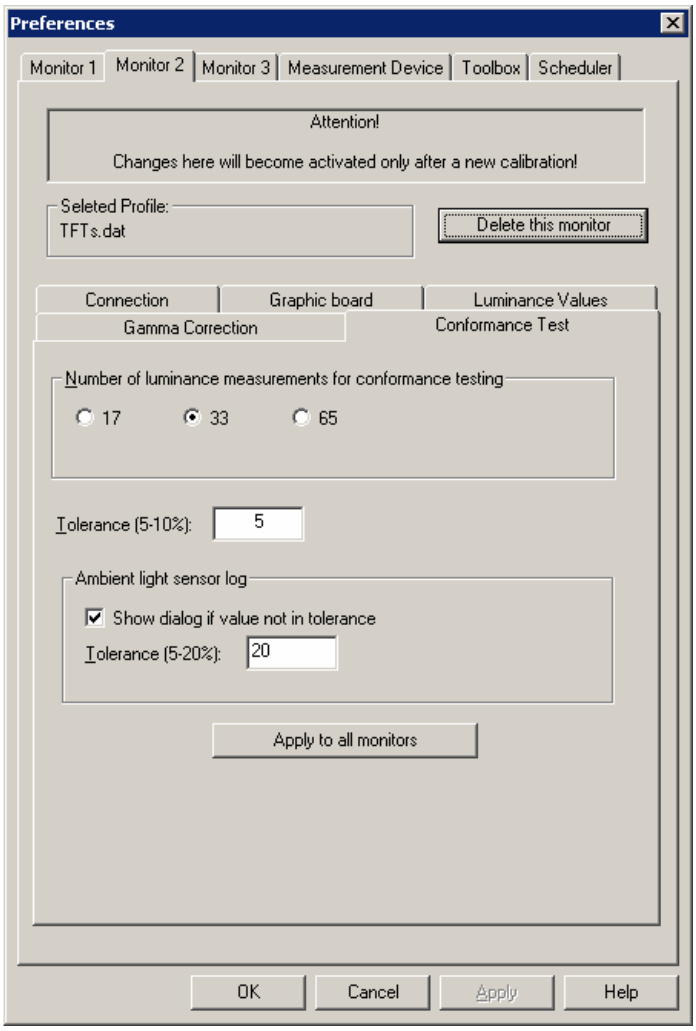


Fig. 16 Preferences of Monitor 2 - Conformance test

3. Click **Apply**.
4. Repeat last two steps for Monitor 3.

Gamma Correction Menu

1. Open the **Gamma Correction** menu.
   This menu displays a list of selectable Gamma Models e.g:
   - DICOM Part 14 Grayscale Standard Display Function; calculates a gamma correction LUT according to DICOM standards.
2. Set Ambient Light Adjustment Value to 0 cd/sqm.

Recommendation is:
Room with low ambient light below 10 lux

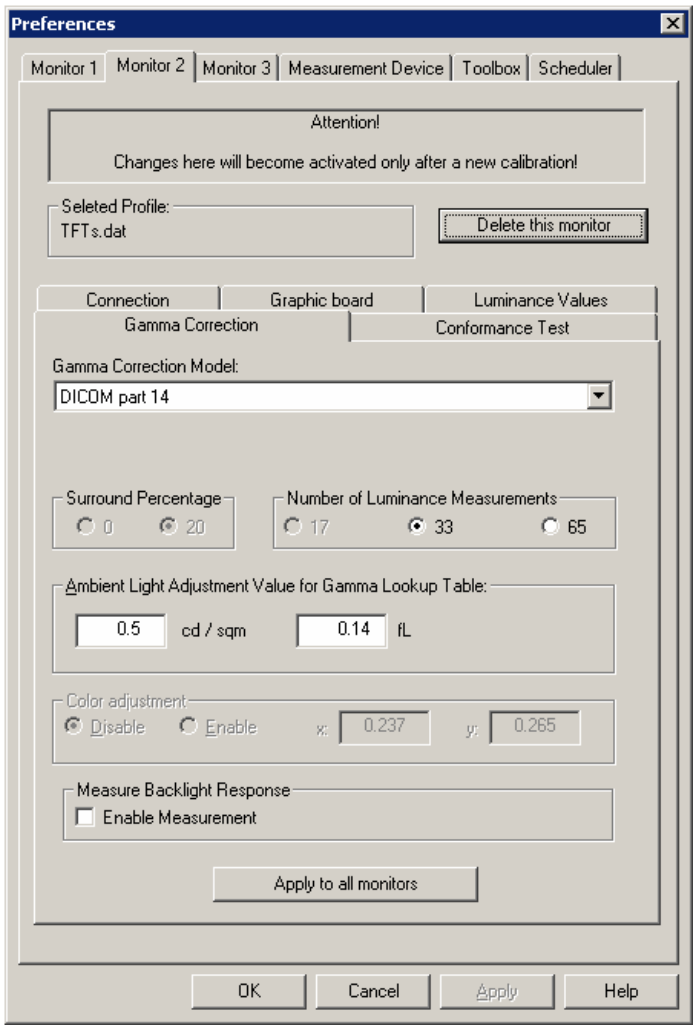


Fig. 17 Gamma Correction parameters

3. Click **Apply**.
4. Repeat last three steps for Monitor 3.
5. Close the window with **OK**.

The monitors delivered with the system have always to be calibrated during start-up at customer site according to the requirements that are described in the Quality Control Manual (Print-No: SPB7-420.621.20...).

⚠CAUTION	**Adjustment / factory setup** **The monitor has been precisely adjusted in the factory using an automatic high performance image processing system. Many of these optimized settings cannot be observed without an appropriate test image and without trained eyes; therefore only modify the settings, if required. Particularly, the focus adjustment is not recommended because it is very subjective, and it is dependent upon several other adjustments (brightness/contrast settings, ambient light, etc.).**

Configuration Menu

1. In the *SMfit ACT Main window* select Monitor 2 or 3. Click **Configuration** to open the submenu.

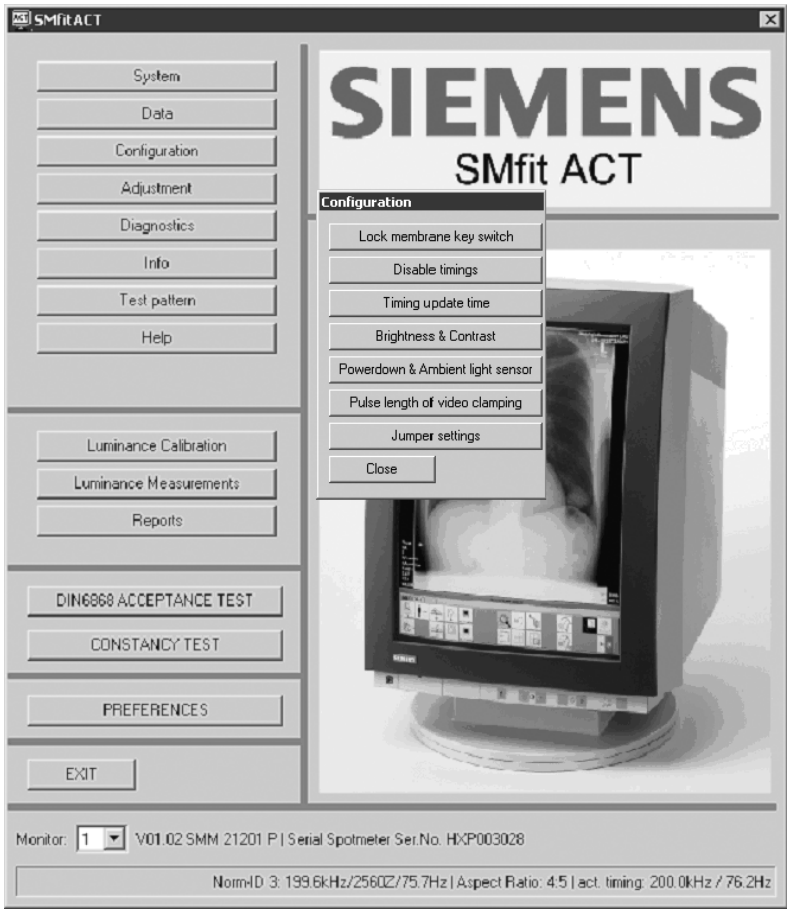


Fig. 1 SMfit ACT Main window - Configuration submenu

Power down and Ambient light sensor

1. In the submenu select **Power down & Ambient light sensor**.

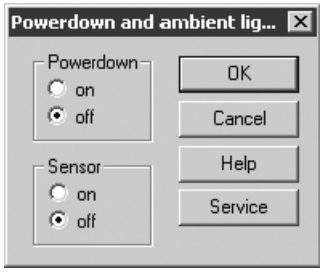


Fig. 2 Power down Dialog

2. The ambient light sensor (brightness/contrast adjustment to the ambient light) must be turned off.
3. Close the window.

Backup of Monitor Settings

1. In the *SMfit ACT Main window* select **Data** to open the submenu.

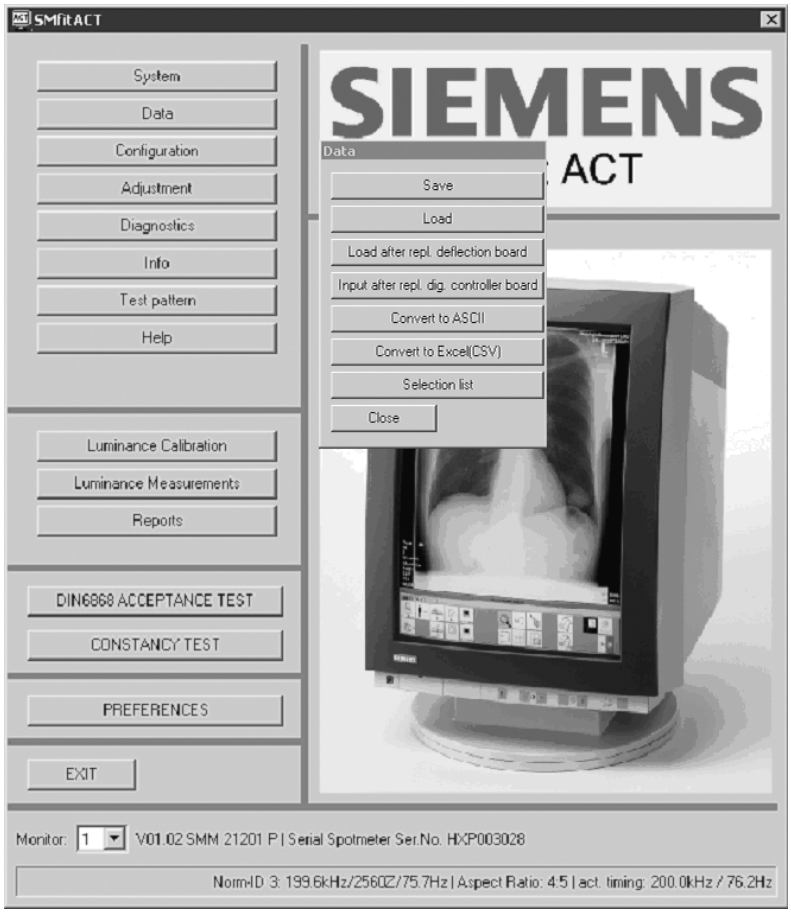


Fig. 3 SMfit ACT Main window - Data submenu

2. Click **Save** and select path with specific filename of monitor (e.g.: monitorleft.dat or monitorright.dat).

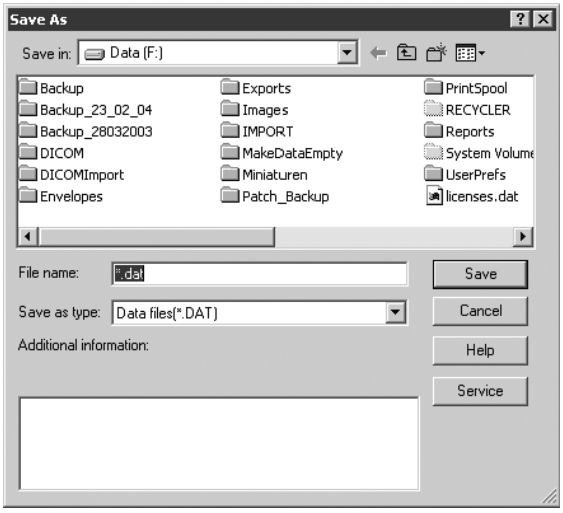


Fig. 4 Save As Dialog

3. Click **Save**.
4. Repeat last three steps for the other high resolution monitor and close the window.

NOTE	**Not all calibration settings are saved.**

Deleting Error Log Files

1. In the *SMfit ACT Main window* select **System** to open the submenu.

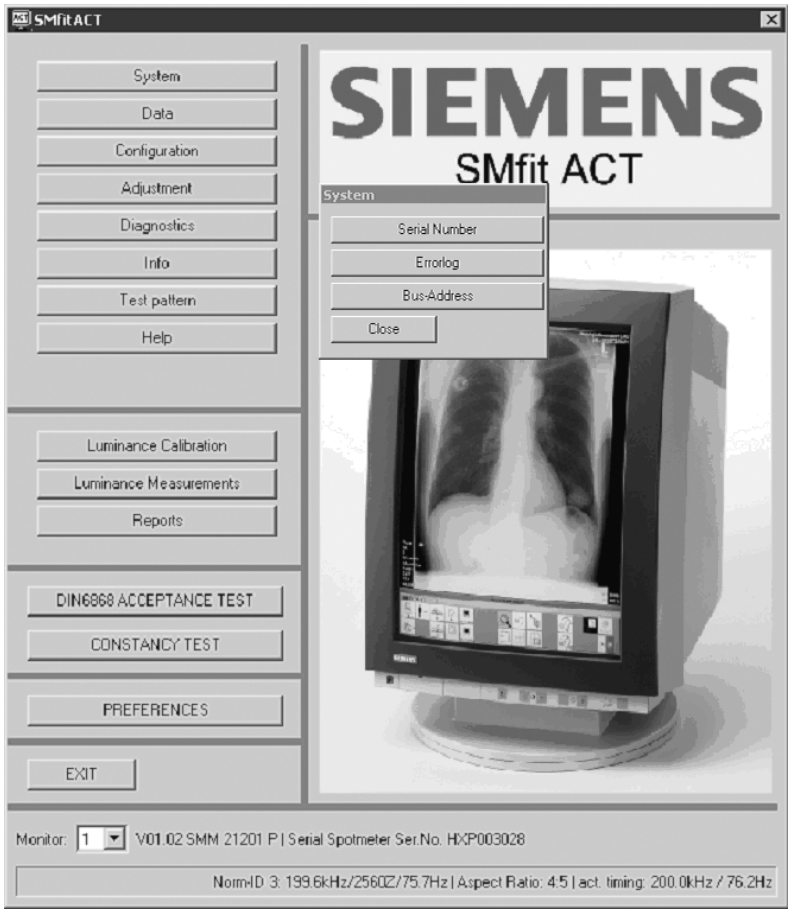


Fig. 5 SMfit ACT Main window - System submenu

2. Click on **Error log** to open the Error Log Dialog.

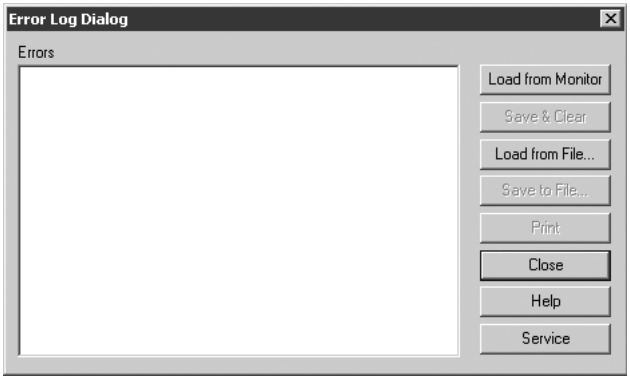


Fig. 6 Error Log Dialog

Test Patterns

NOTE	**These defined patterns are independent of the required test images used during the calibration and conformance testing procedures.**

The program includes test images and test patterns, to assist in the adjustment and verification of performance.

When any pattern is selected, the menu structure remains in the foreground and the pattern appears in the background.

1. To see the complete pattern, click anywhere on the screen, outside the SMfit ACT window.
2. To restore the SMfit ACT window, click anywhere on the screen.
3. In the *SMfit ACT Main window* select **Test Pattern** to open the submenu. Here you can load a test pattern.
4. Click **Show on all monitors.**
5. Select test pattern as you want.

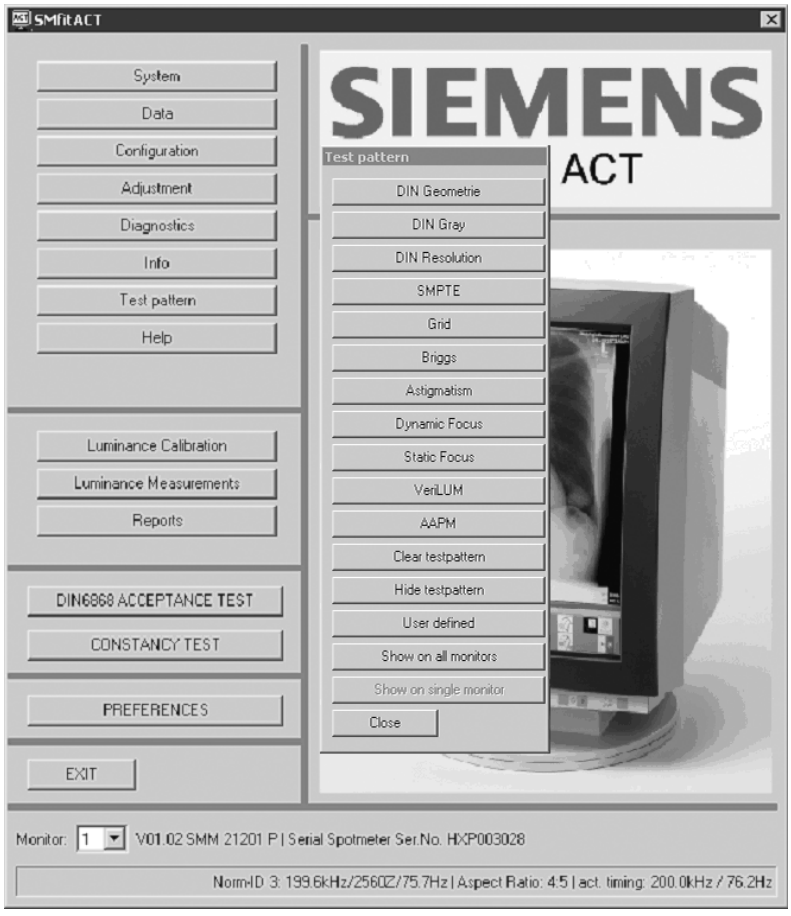


Fig. 7 SMfit ACT Main window - Test Pattern submenu

Luminance Measurement

This menu allows for several measurements to be made, without changing calibrated or set parameters. An Ambient Light measurement has already been performed in "Gamma Correction Menu" on Page 2 - 16.

Luminance Calibration

1. In the *SMfit ACT Main window* select Monitor 1 (assuming syngo monitor is not active).
2. Click **Luminance Calibration** to open the submenu.

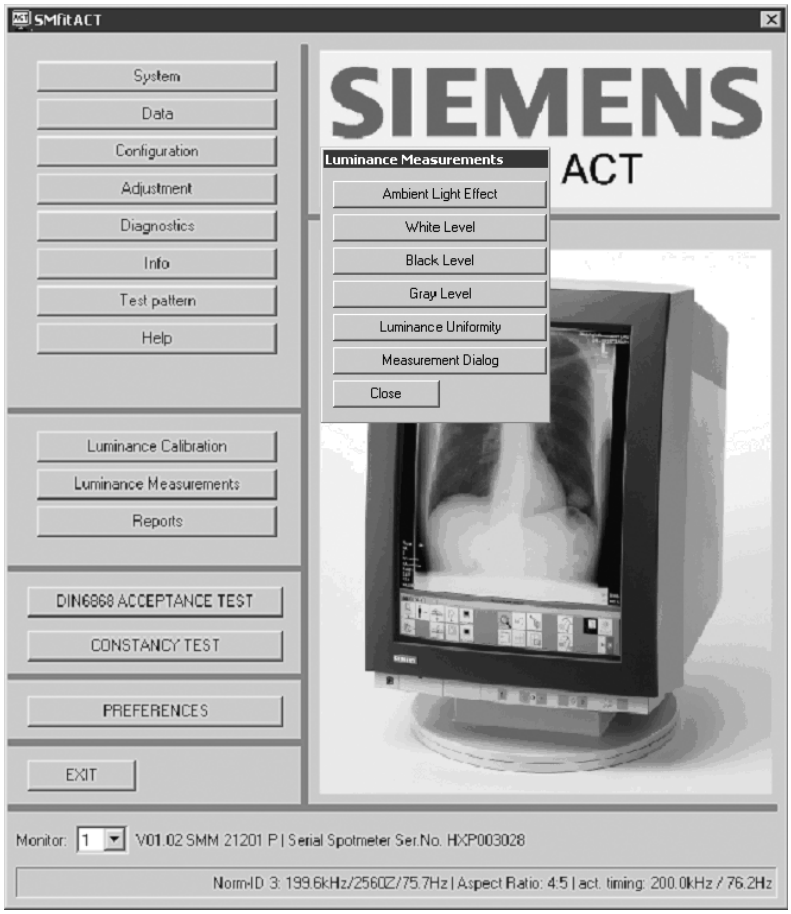


Fig. 8 SMfit ACT Main window: Luminance Calibration submenu

3. Click **Perform Calibration.**
4. The *Start Calibration* window appears.

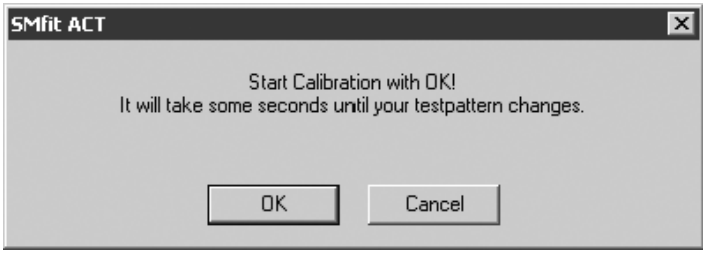


Fig. 9 Start Calibration window

5. Start Calibration with **OK**.

6. The *Desired Luminance Values* window displays.

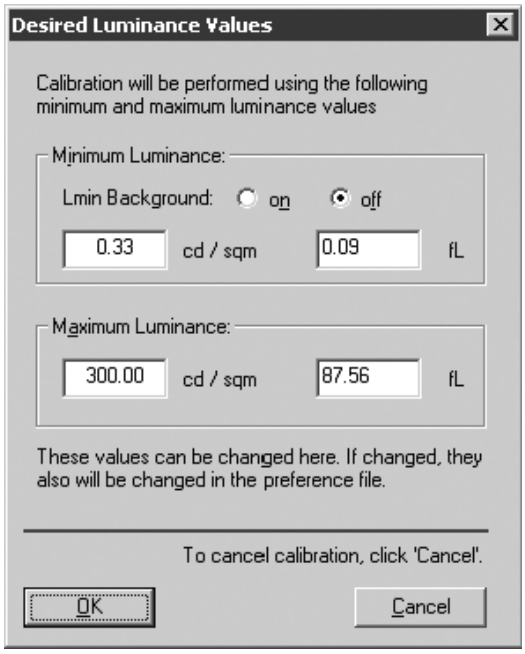


Fig. 10 Desired Luminance Values window

7. Confirm with **OK** to continue the procedure.

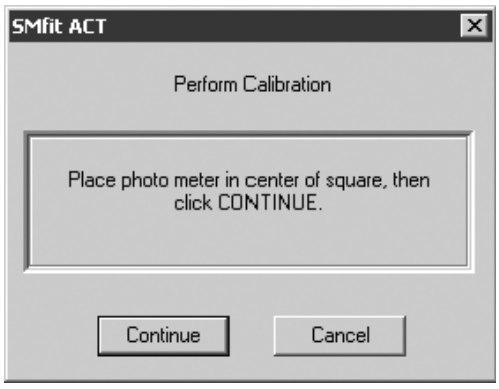


Fig. 11 Perform Calibration window

8. Foam on the Spotmeter, without tube!
9. Click **Continue.**
10. Wait about 5 minutes; the background color changes until the *Report Calibration* window appears.

Report Calibration Window

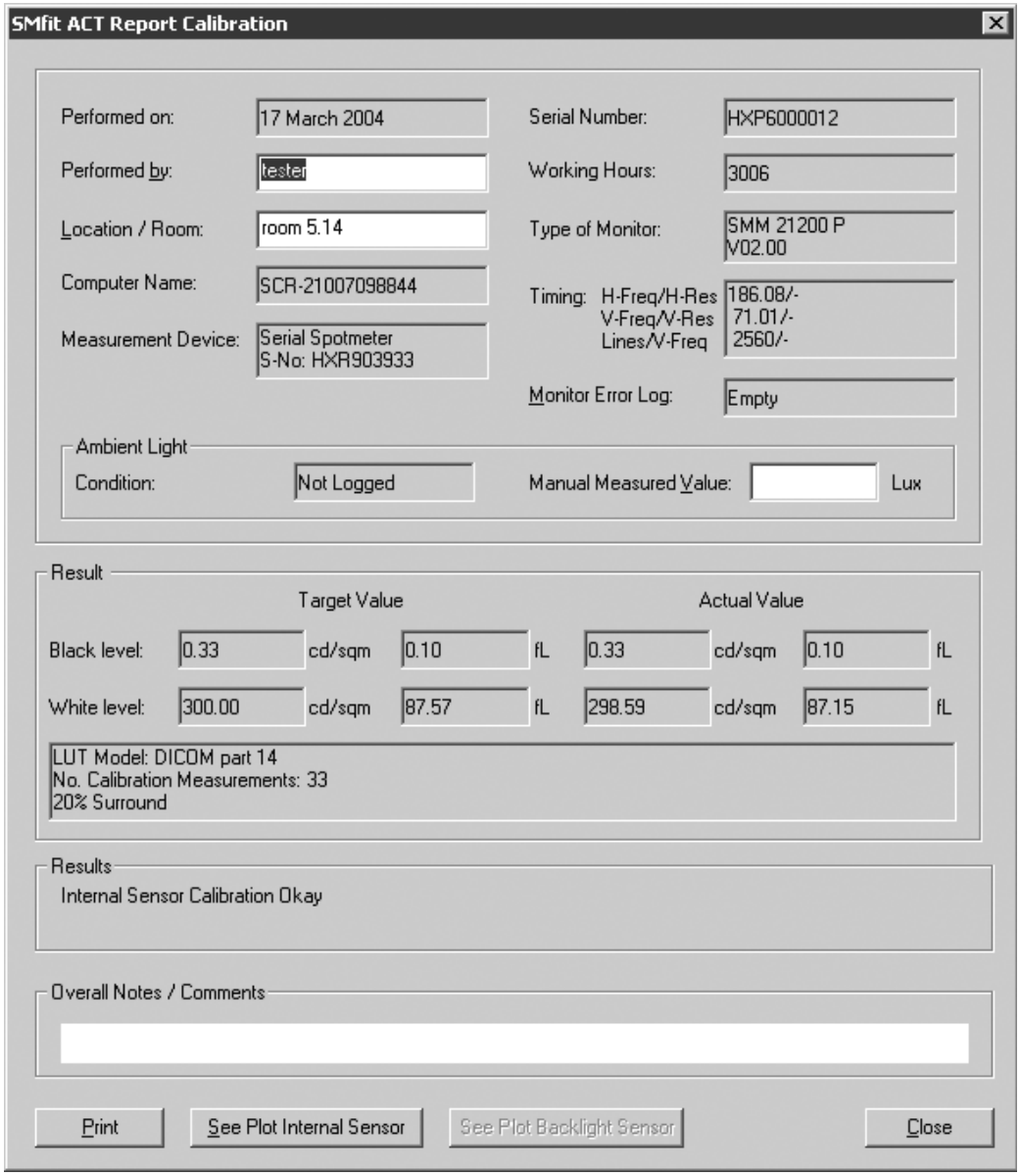


Fig. 12 Report Calibration window

1. Print that report or close the window.

The calibration of first monitor is finished.

Calibration of Second Monitor

NOTE

If the syngo monitor is active, the monitor numbers are Monitor 2 (right) and Monitor 3 (left).
If the syngo monitor is turned off, the monitor numbers are Monitor 1 (right) and Monitor 2 (left).

1. In the *Preferences* window click **Monitor 2** menu.

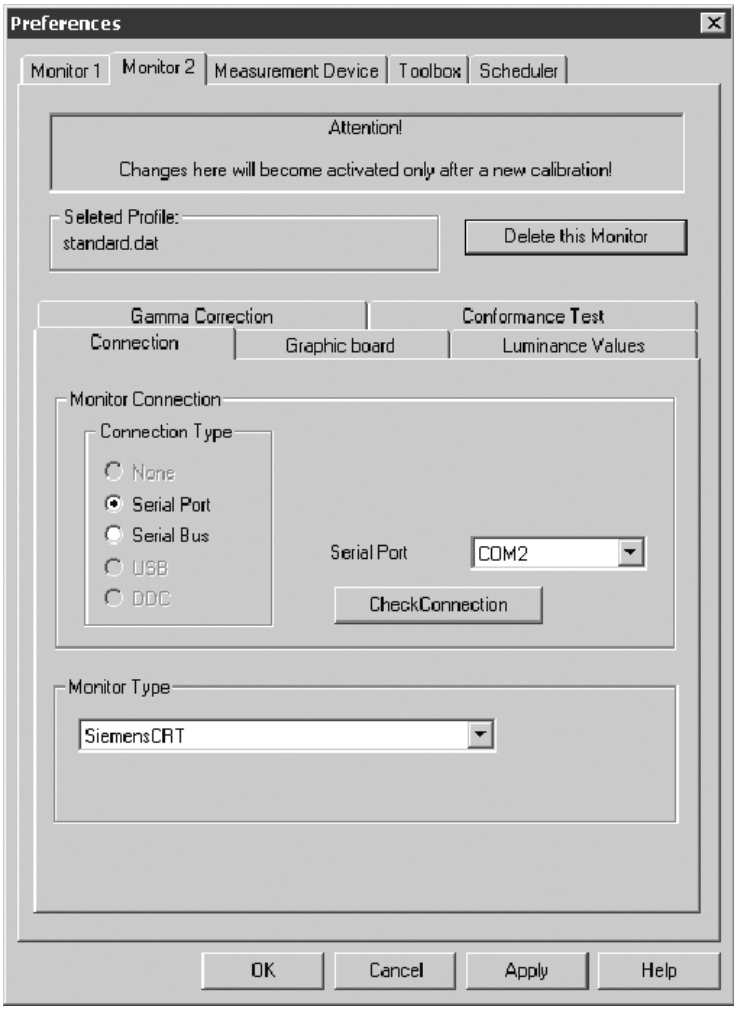


Fig. 13 Preferences of Monitor 2

Selecting Monitor 2

1. At the bottom of the window select other high resolution monitor (Monitor 2, if syngo monitor is not active).

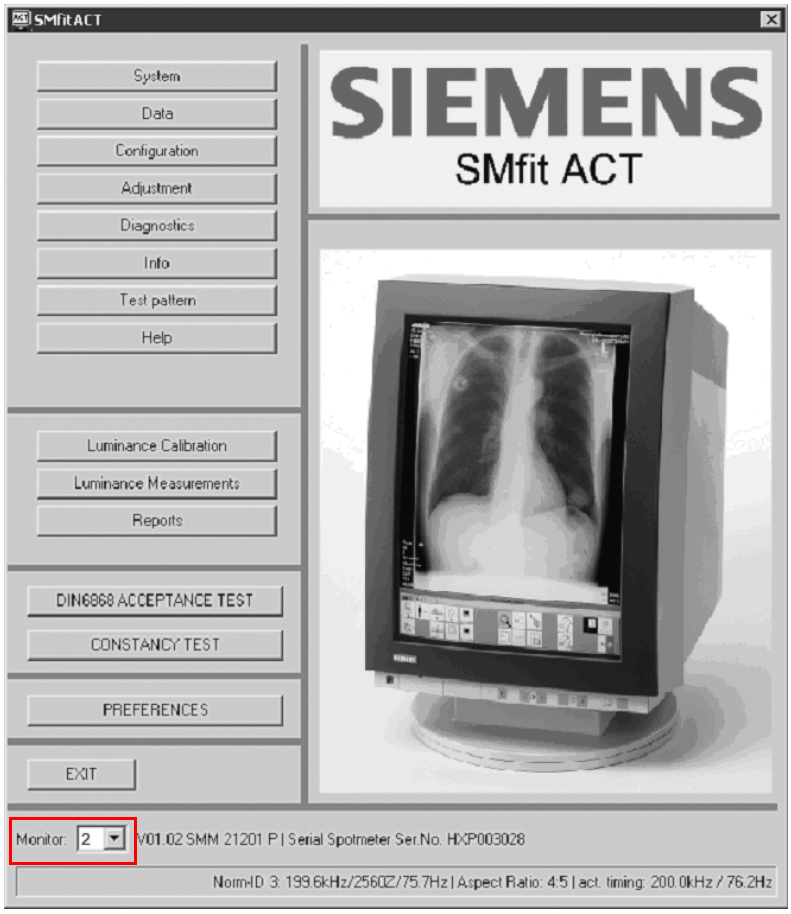


Fig. 14 SMfit ACT Main window

2. Repeat the calibration with Monitor, with same values (0,33, 300, plus the value measured with the Spotmeter)

   Refer to section "Luminance Values" on Page 2 - 14 and section "Gamma Correction Menu" on Page 2 - 16.

3. Perform the following steps for the second monitor:
   - Luminance calibration and
   - Report Calibration
   (refer to Page 4 - 7 and Page 4 - 9)

Geometry Adjustment

1. In the *SMfit ACT Main window* select **Adjustment** to open the submenu.

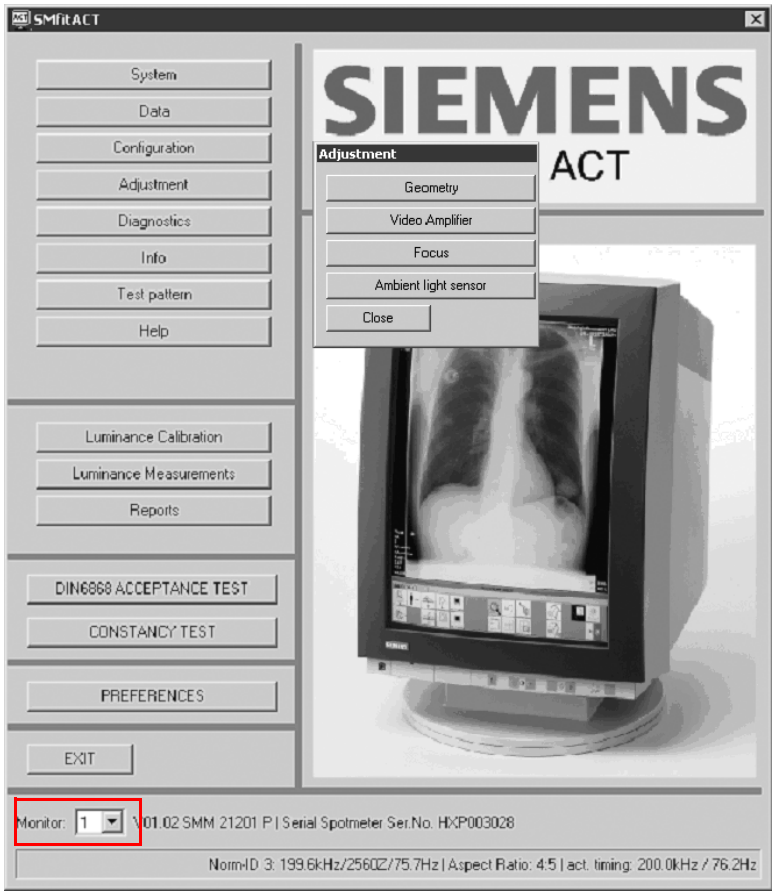


Fig. 15 SMfit ACT Main window - Adjustment submenu

2. Click on **Geometry** to open the *Geometry Adjustment* window.

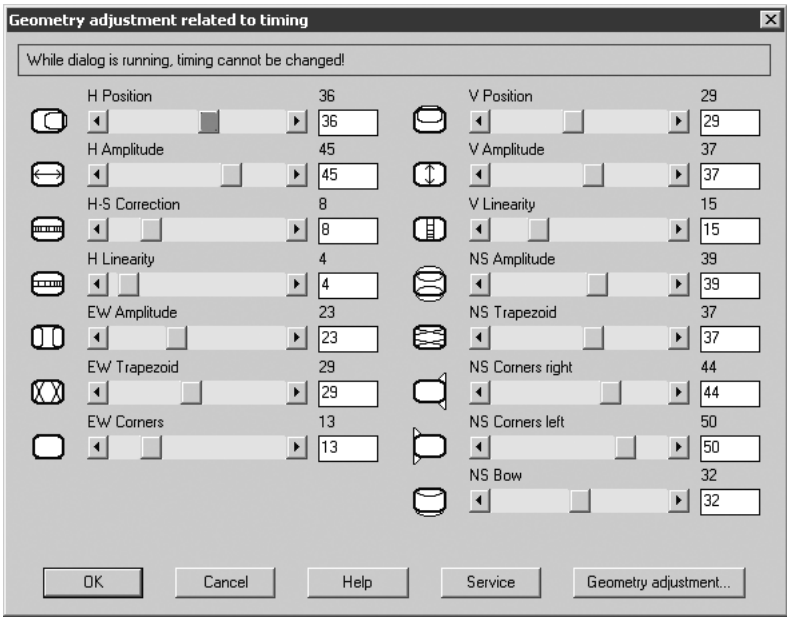


Fig. 16 Geometry Adjustment window (with sample values only)

3. Additionally click on **Geometry Adjustment**.

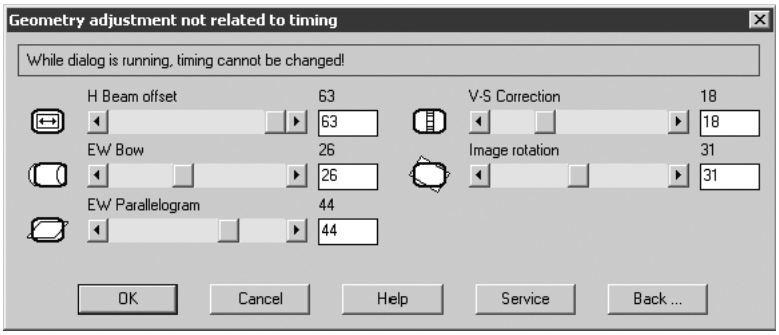


Fig. 17 Geometry Adjustment window (with sample values only)

Brightness /Contrast

1. In the *SMfit ACT Main window* select **Configuration** to open the submenu.

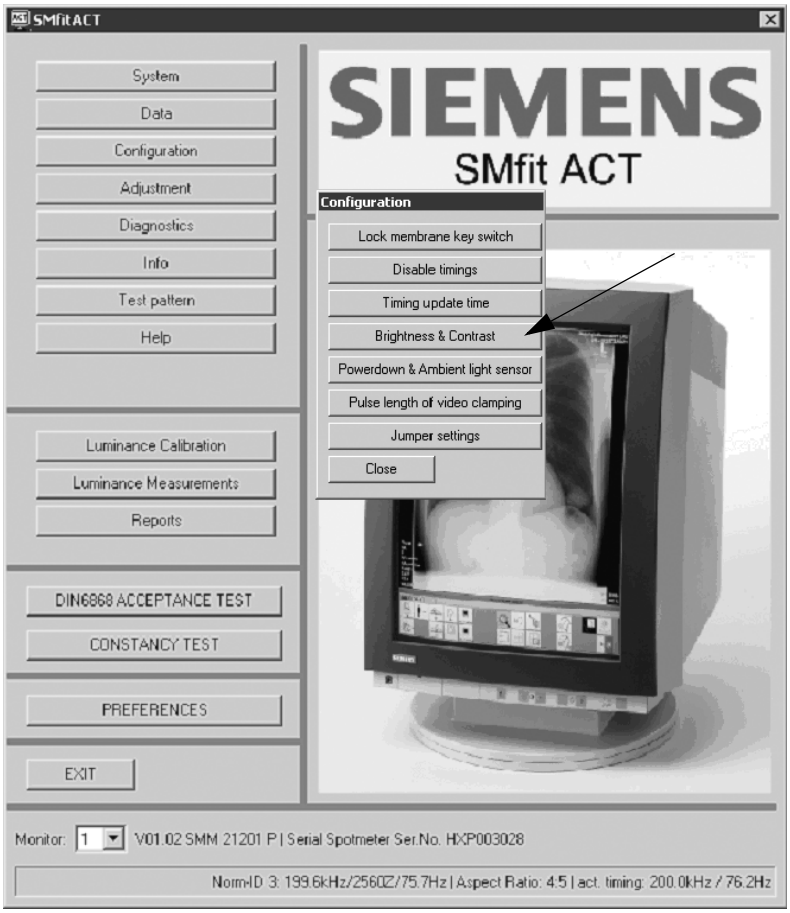


Fig. 18 SMfit ACT Main window - Configuration submenu

2. Click on **Brightness & Contrast** to open the *Brightness and Contrast* window.

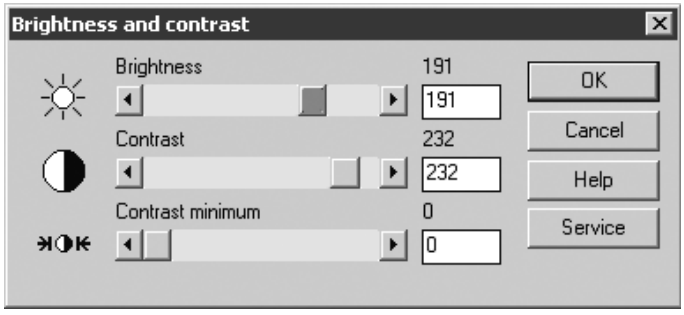
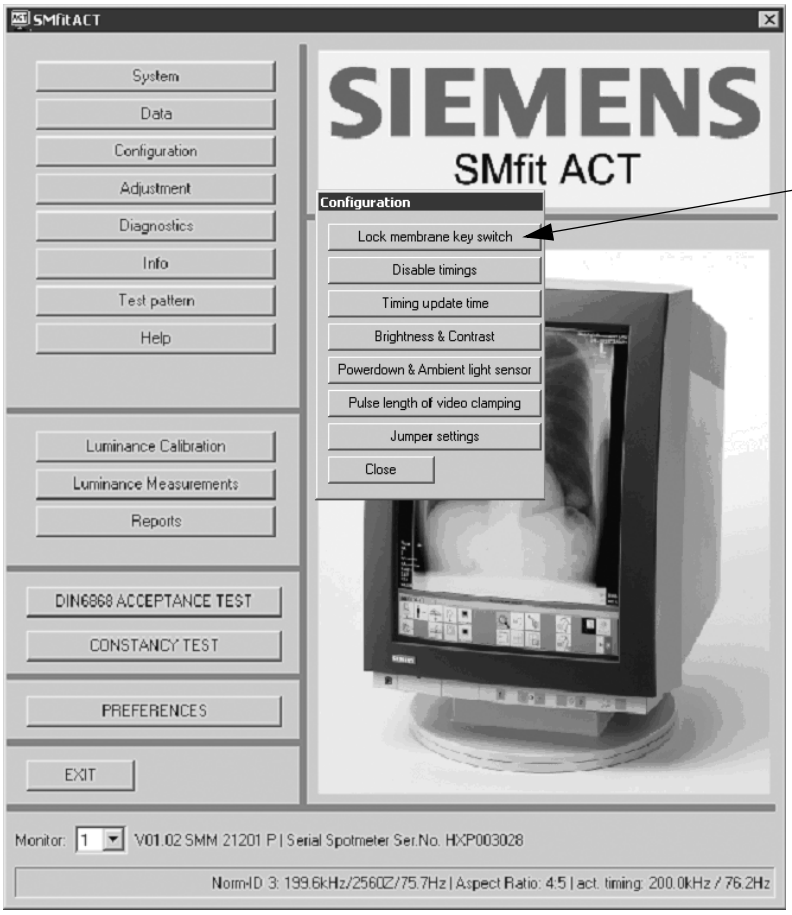


Fig. 19 Brightness and Contrast window (with sample values only)

3. Confirm with **OK**.
4. Close that window.

Lock Membrane Key Switch

1. In the *SMfit ACT Main window* select **Configuration** to open the submenu.
2. Check that the **Lock Membrane key switch** is disabled.
3. Close Configuration window.



Note:
The buttons for brightness and contrast at the monitor must always be disabled for the user.

Fig. 20 SMfit ACT Main window - Configuration submenu

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The monitors delivered with the system have always to be calibrated during start-up at customer site according to the requirements that are described in the Quality Control Manual (Print-No: SPB7-420.621.20...).

⚠CAUTION

Adjustment / factory setup

The monitor has been precisely adjusted in the factory using an automatic high performance image processing system. Many of these optimized settings cannot be observed without an appropriate test image and without trained eyes; therefore only modify the settings, if required. Particularly, the focus adjustment is not recommended because it is very subjective, and it is dependent upon several other adjustments (brightness/contrast settings, ambient light, etc.).

Backup of Monitor Settings

1. In the *SMfit ACT Main window* select **Data** to open the submenu.

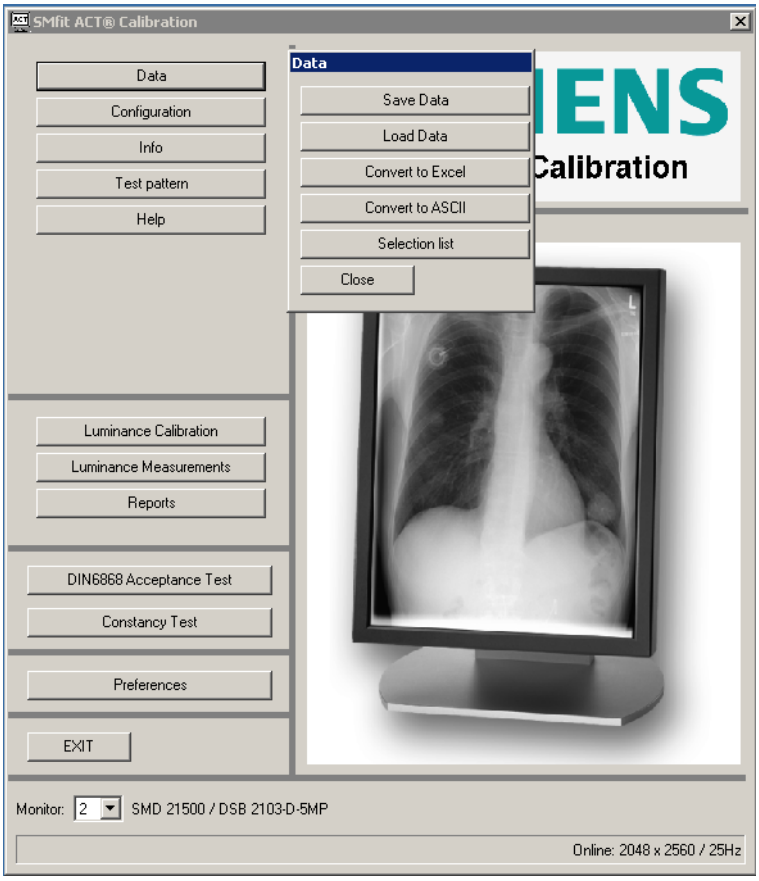

Fig. 1 SMfit ACT Main window - Data submenu

2. Click **Save Data** and select path with specific filename of monitor (e.g.: monitorleft.dat or monitorright.dat).

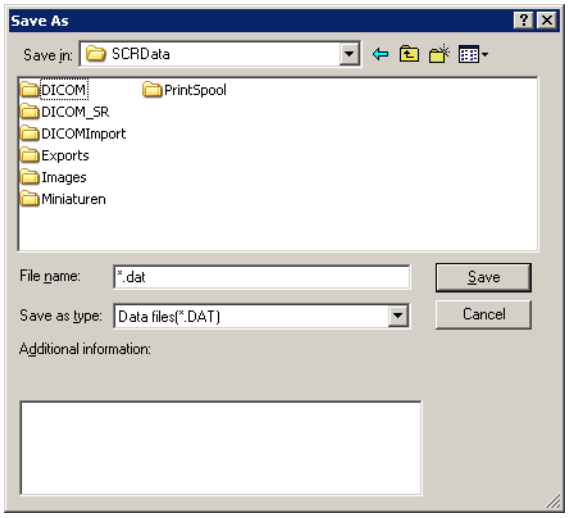

Fig. 2 Save As Dialog

3. Click **Save** and close the window
4. Select other high resolution monitor in Main Window and repeat last two steps.

NOTE	**Not all calibration settings are saved.**

Test Patterns

NOTE	**These defined patterns are independent of the required test images used during the calibration and conformance testing procedures.**

The program includes test images and test patterns, to assist in the adjustment and verification of performance.

When any pattern is selected, the menu structure remains in the foreground and the pattern appears in the background.

1. To see the complete pattern, click anywhere on the screen, outside the SMfit ACT window.
2. To restore the SMfit ACT window, click anywhere on the screen.
3. In the *SMfit ACT Main window* select **Test Pattern** to open the submenu. Here you can load a test pattern.
4. Click **Show on all monitors.**
5. Select test pattern as you want.

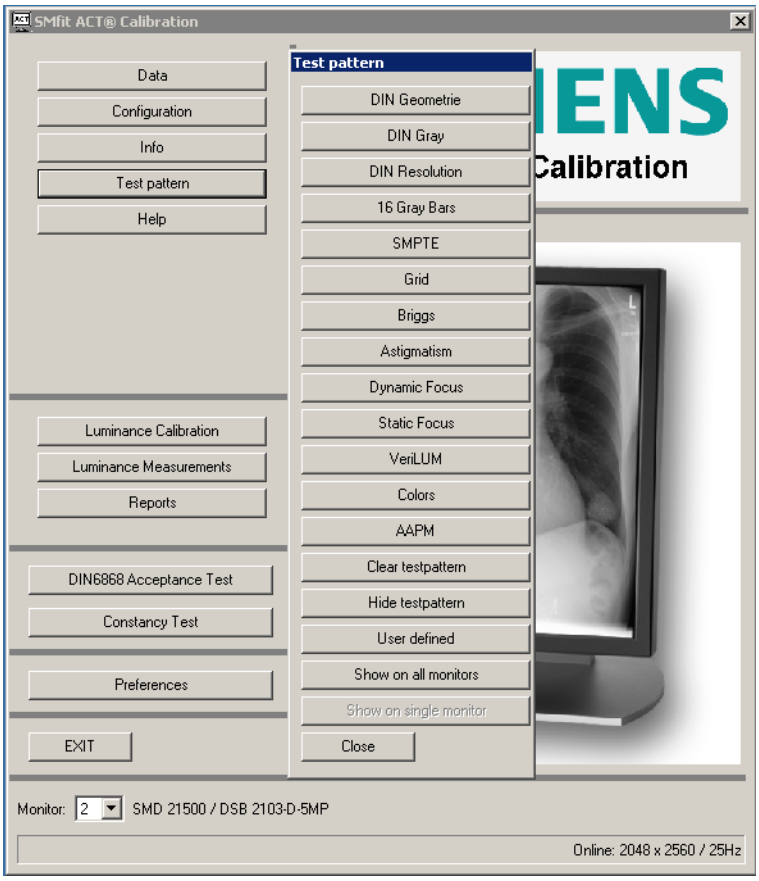

Fig. 3 SMfit ACT Main window - Test Pattern submenu

Luminance Calibration

1. In the *SMfit ACT Main window* select Monitor 2. Then click **Luminance Calibration** to open the submenu.

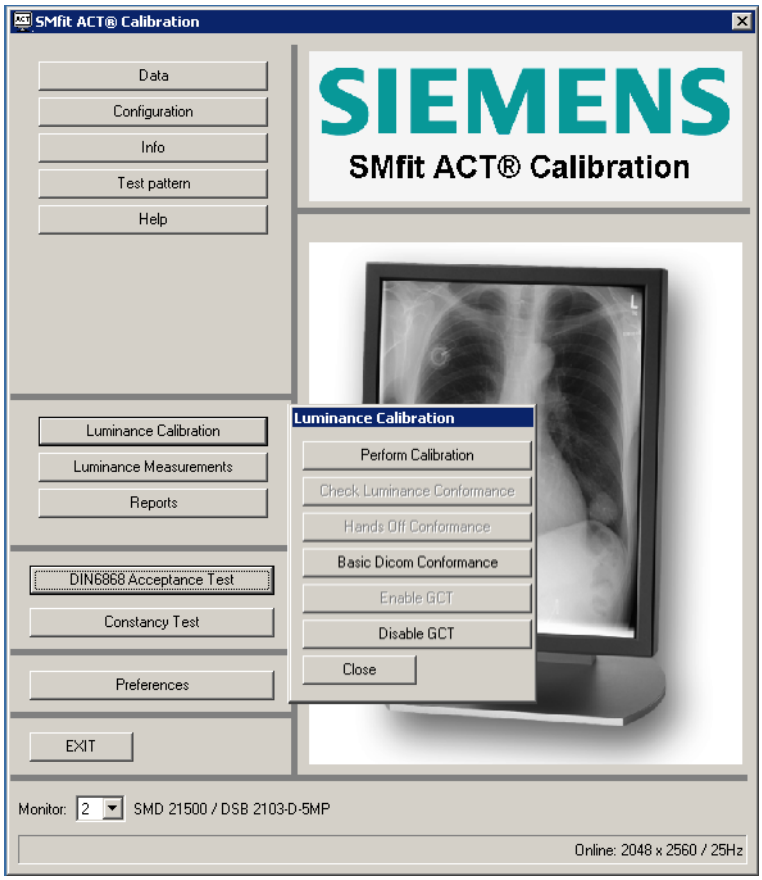

Fig. 4 SMfit ACT Main window: Luminance Calibration submenu

2. Check that GCT is active (the “Enable GCT” button must be deactivated).
3. Click **Perform Calibration.**
4. The *Start Calibration* window appears.

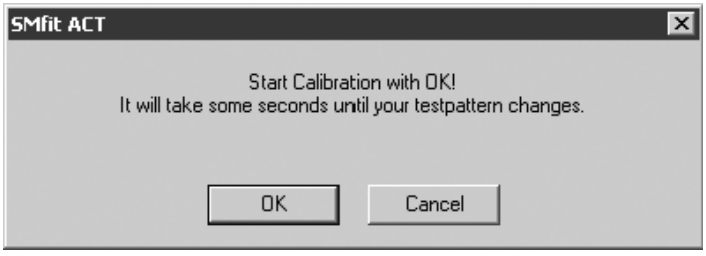

Fig. 5 Start Calibration window

5. Start Calibration with **OK**.

6. If you are calibrating with a Universal Serial Luminance Meter, the following message appears (else continue with step 9.).

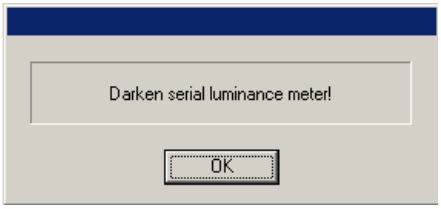

Fig. 6 Message: Darken serial luminance meter

7. Hold the Universal Luminance Meter to a dark surface (e.g. desk surface).
8. Wait 10 -15 seconds until “Finished” message is displayed and click “OK”.

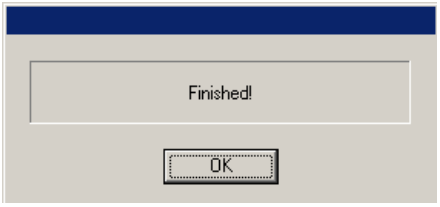

Fig. 7 Message: Finished

9. The *Desired Luminance Values* window displays.

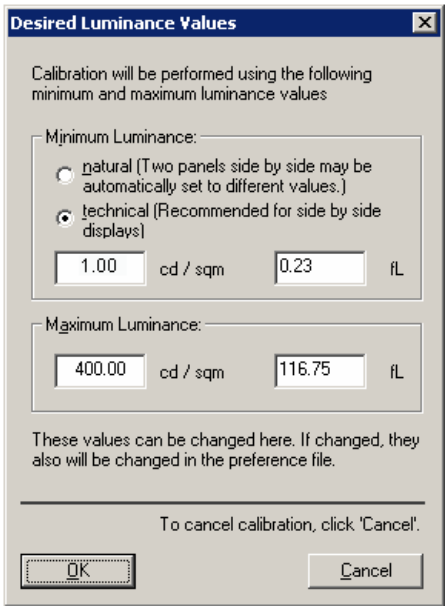

Fig. 8 Desired Luminance Values window

10. Confirm with OK to continue the procedure.

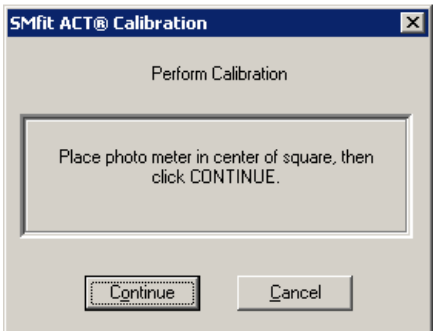

Fig. 9 Perform Calibration window

11. If you are calibrating with a Spotmeter, foam on the Spotmeter, without tube!
12. Click **Continue.**
13. Wait about 5 minutes; the background color changes until the *Select LUT storage position* window appears.

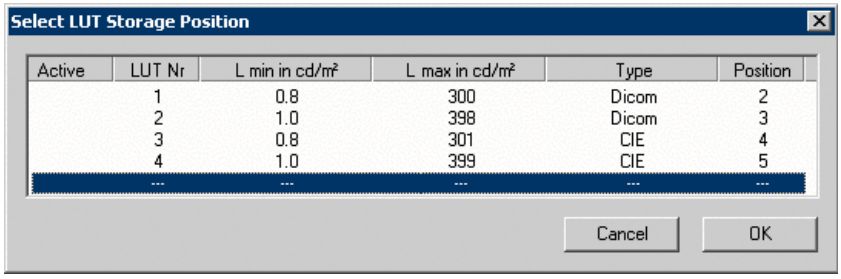

Fig. 10 Selecting LUT Storage Position

14. Select as LUT Nr. the last position entry and click “OK”.
15. Confirm the following message with “OK”.

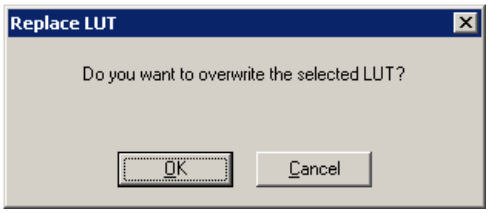

Fig. 11 Message: Overwriting LUT

Calibration Report Window (Spotmeter)

In the SMFit Act main menu, click **Reports**>Calibration Report

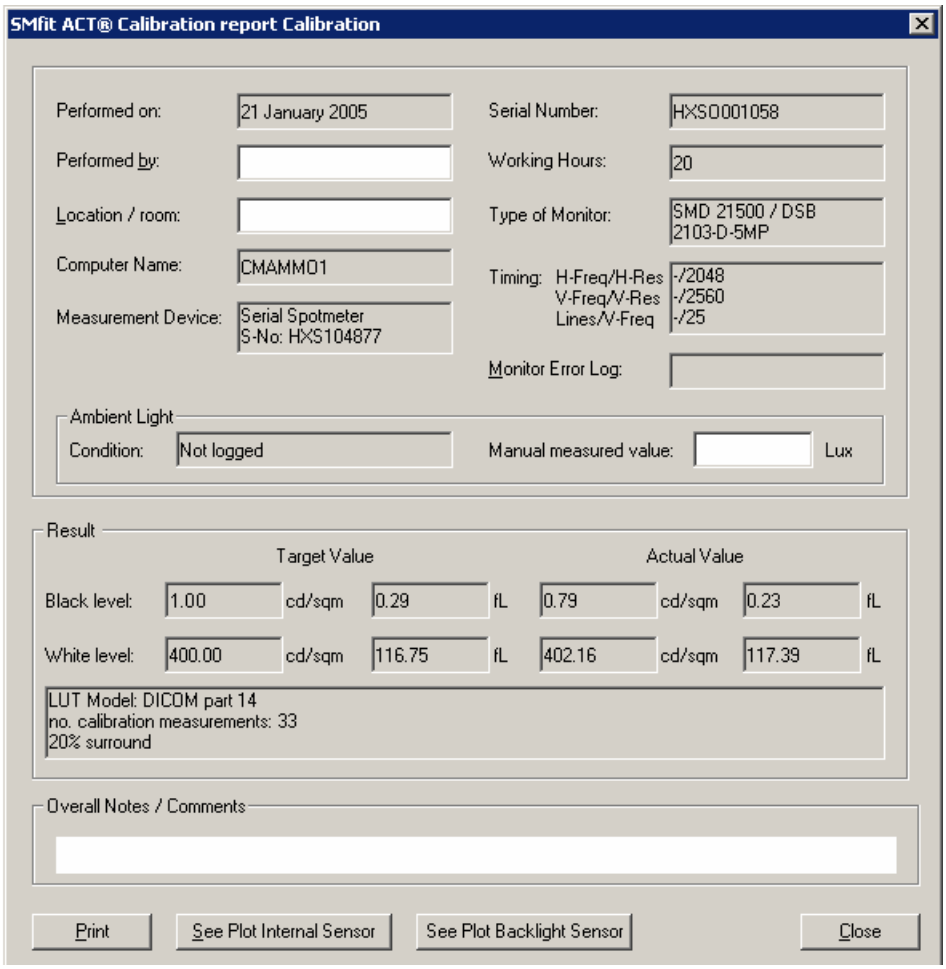

Fig. 12 Report Calibration window

Print that report or close the window.

Perform conformance test (Spotmeter)

In the main menu, click **Luminance Calibration**>Conformance Test. A dialog window is displayed. Click continue.

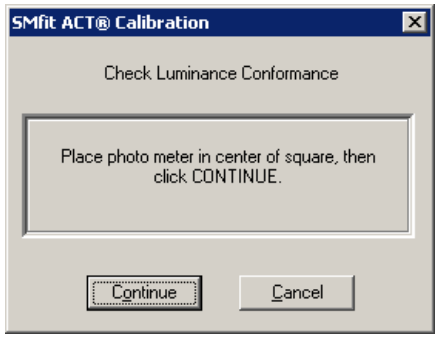

Fig. 13 Check Luminance Conformance

Calibration report Conformance test Window (Spotmeter)

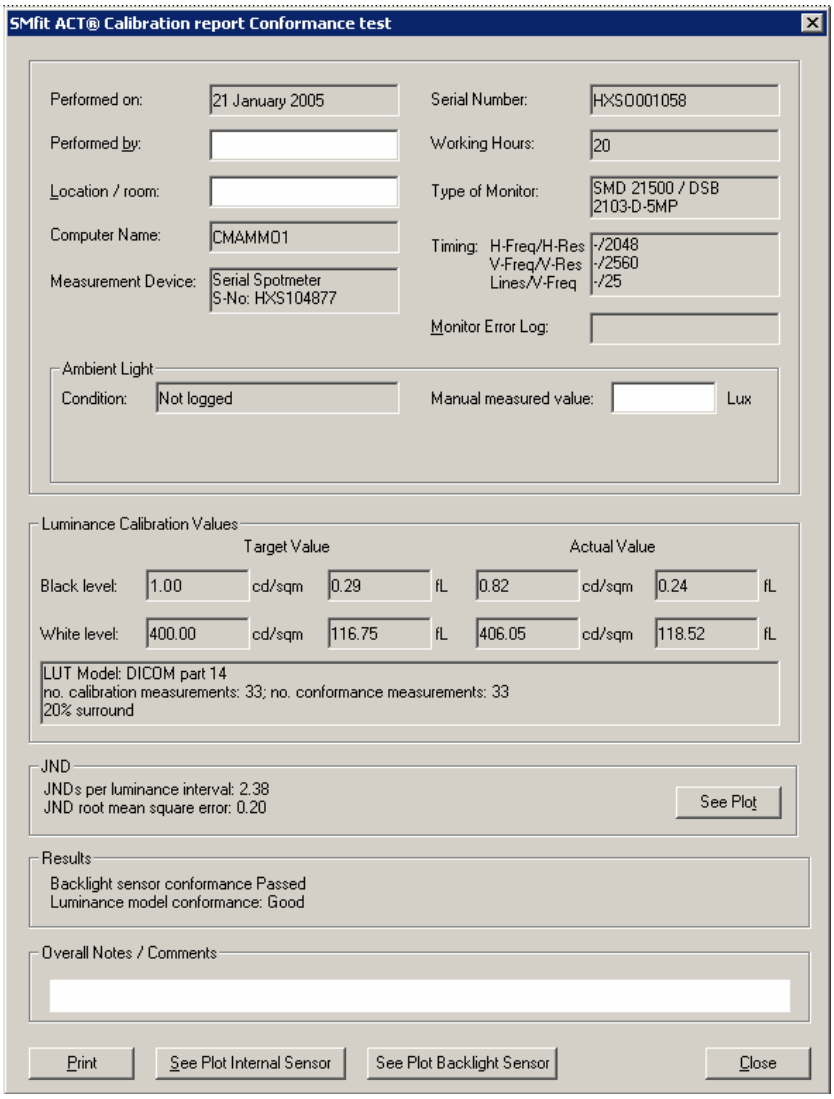

Fig. 14 Calibration report conformance test window

Print that report or close the window

The calibration of first monitor is finished.

Calibration Report Window (Universal Serial Luminance Meter)

In the SMFit Act main menu, click **Reports**>Calibration Report

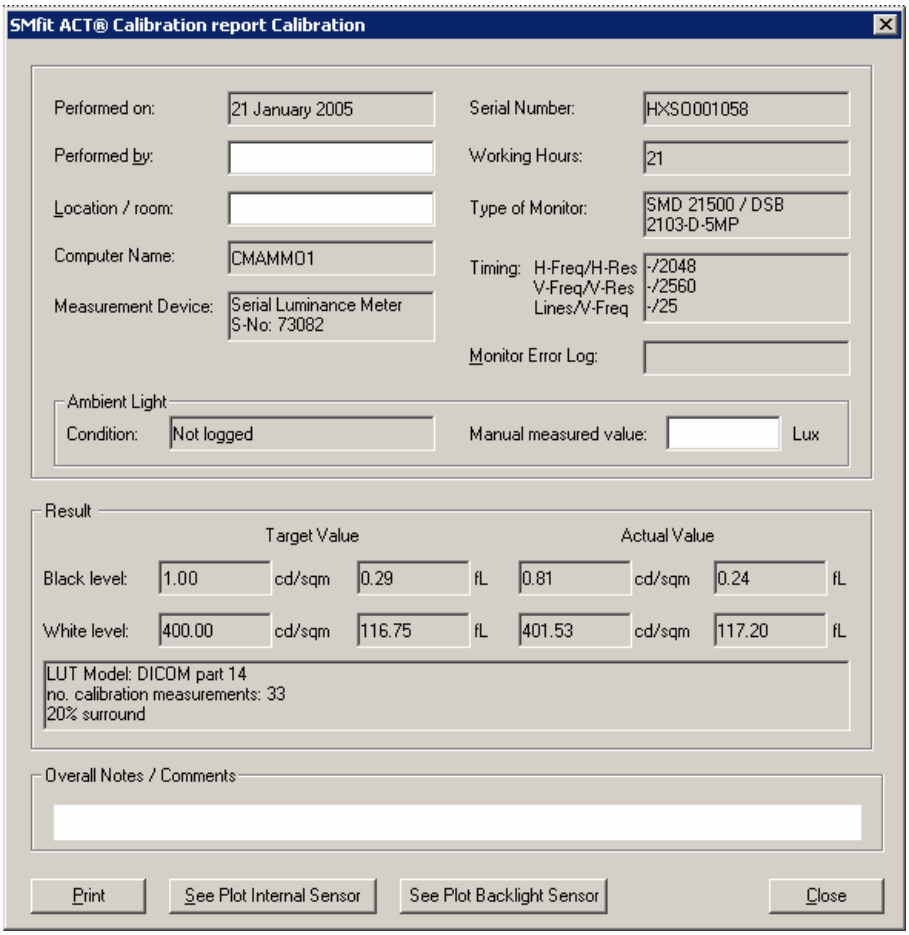

Fig. 15 Report Calibration window

Print that report or close the window.

Perform conformance test (Universal Serial Luminance Meter)

In the main menu, click **Luminance Calibration**>Conformance Test. A dialog window is displayed. Click continue.

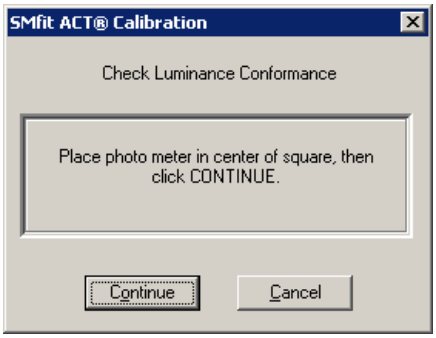

Fig. 16 Check Luminance Conformance

Calibration report Conformance test window (Universal Serial Luminance Meter)

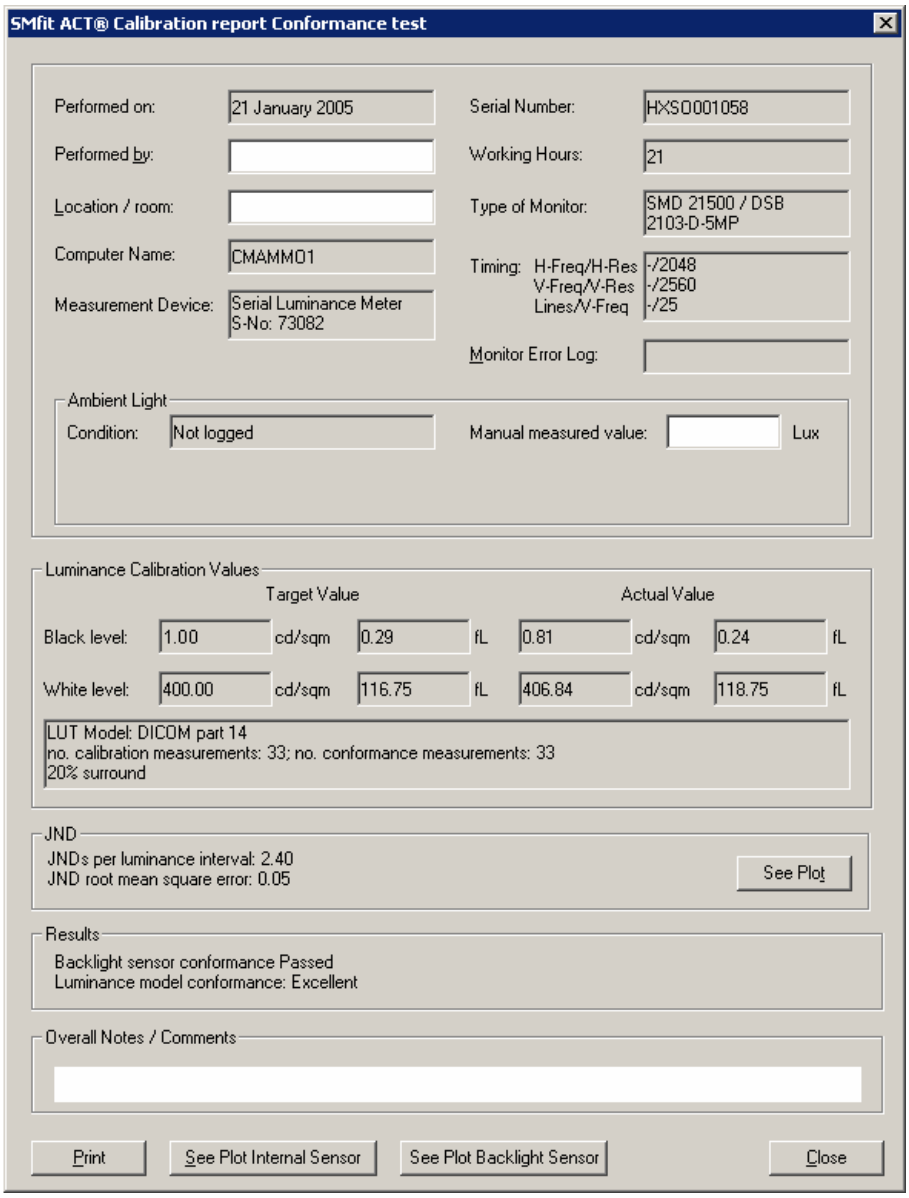

Fig. 17 Calibration report conformance test window

Print that report or close the window

The calibration of first monitor is finished.

Calibration of Second Monitor

NOTE	**If the syngo monitor is active, the monitor numbers are Monitor 2 (right) and Monitor 3 (left).** **If the syngo monitor is turned off, the monitor numbers are Monitor 1 (right) and Monitor 2 (left).**

1. In the *Preferences* window click menu for other high resolution monitor (Monitor 3 if syngo monitor is active, which is assumed below).

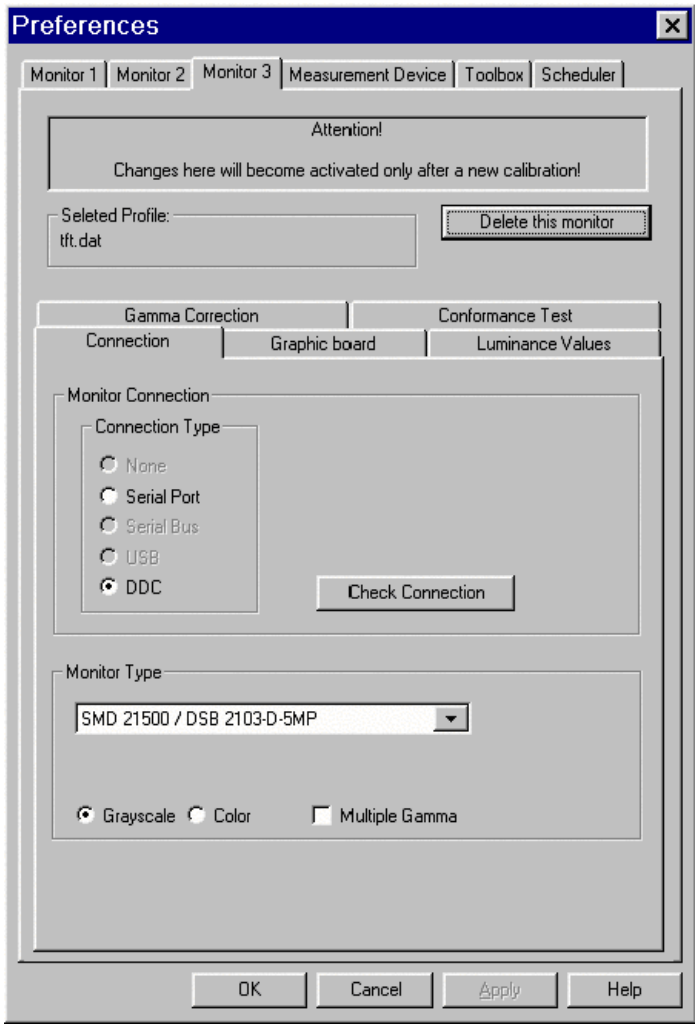

Fig. 18 Preferences of Monitor 3

Selecting Monitor 3

1. At the bottom of the window select Monitor 3.

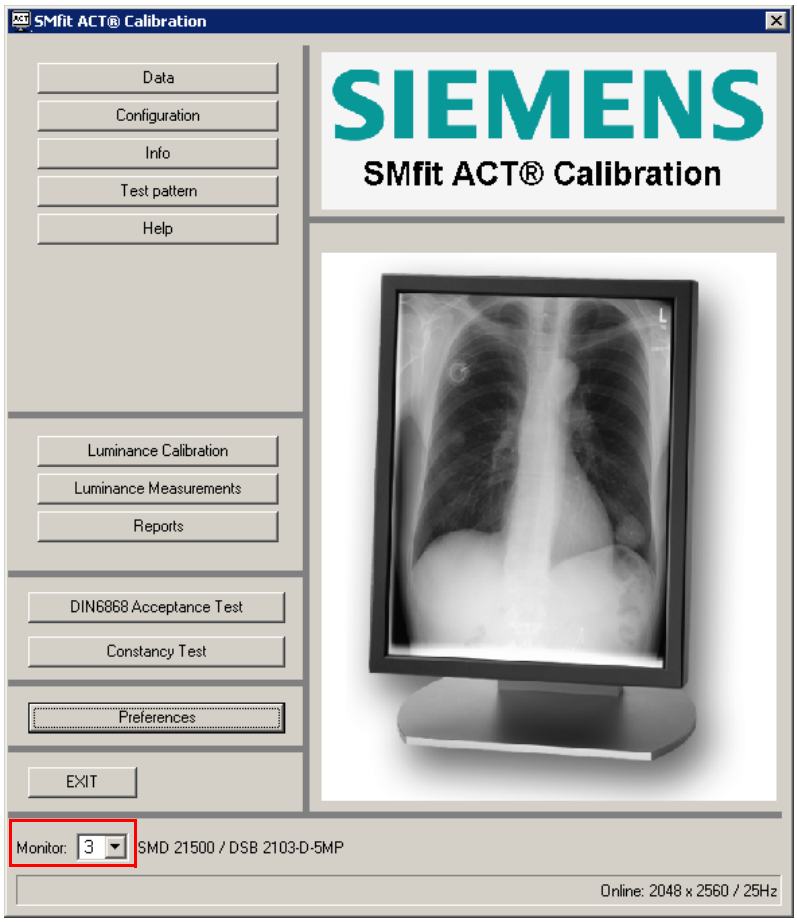

Fig. 19 SMfit ACT Main window

2. Repeat the calibration with Monitor 3, using the same values.

   Refer to section "Luminance Values" on Page 3 - 12.

3. Perform the following steps for the second monitor:
   - Luminance calibration
   - Report Calibration and Report Conformance Test
   (refer to Page 5 - 4, Page 5 - 9 and Page 5 - 10)

To perform a calibration of Barco Coronis Mammo Display Systems with Medical® Pro follow these steps:

1. Select Option / End Session / Shutdown to shutdown the system.
2. Turn on the computer and hold shift key pressed to login as administrator.
3. Insert Installation DVD into DVD drive D:
4. Open Explorer and run D:\MediCalPro_203101\Setup.exe

NOTE **If any license string is required, use the original license string from Barco MediCalPro CD.**

Starting up for the first time

1. If the system contains no Barco flat panel displays MediCal Pro will notice that there is no configuration set up in the program yet. It will ask if you want to log in as Advanced user, to set up the configuration.

Fig. 1 Window: No configuration

2. Select **Yes**.
3. MediCal Pro opens the Log in window because you have to be advanced user to set up the configuration.
   Login as **meduser**. In the User Password box, enter “advanced”.

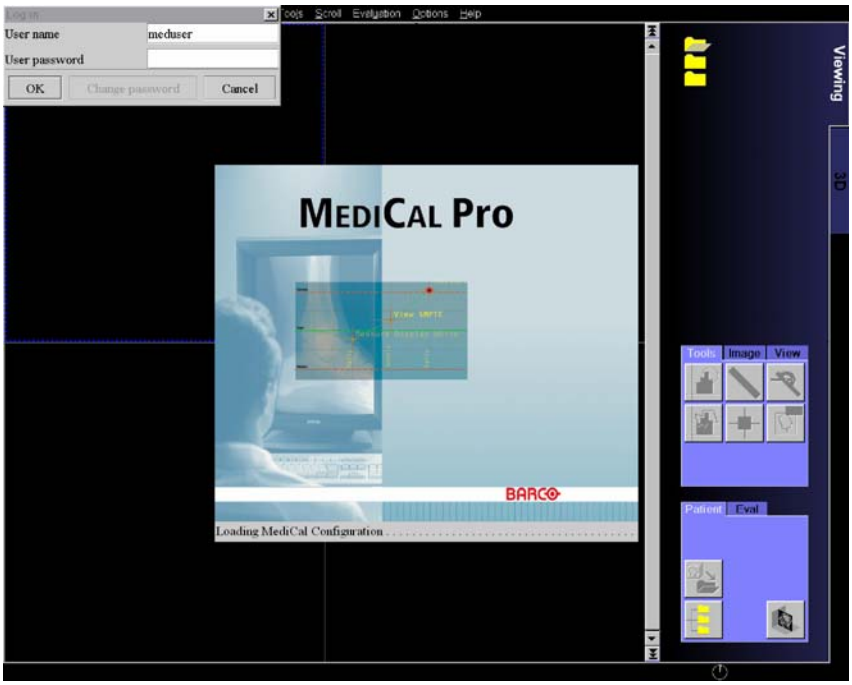

Fig. 2 MediCal Pro Login window

4. Select **OK**.
5. If the system contains Barco flat panel displays, the detected displays are mentioned in a message box.

Fig. 3 Message: New display detected

6. Click on **Add Now** to proceed and add the displays to the configuration. MediCal Pro asks whether or not you wish to connect to MediCal Administrator on the network.

Fig. 4 Message: MediCal Administator connection

7. Select **No** and continue.
8. You can perform a number of actions to the displays when they are listed in the Configuration section. Therefore, click with the right mouse button on the icon of the display you want to perform an action to. A menu with possible actions will pop up.

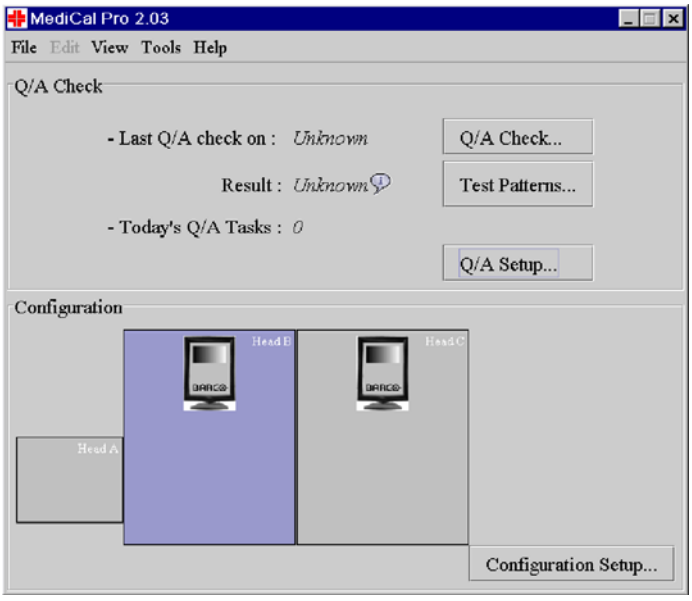

Fig. 5 MediCal Pro: Selecting Head B

9. Select **Head B**.

10. Select Tools>Properties> Details to view the display information.

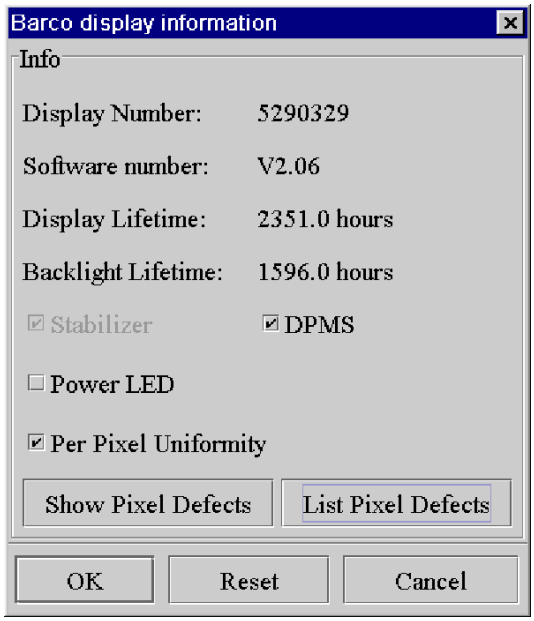

Fig. 6 Barco display information

11. Click **OK** to continue.

Calibrating Display Head B

NOTE	**The displays must be warmed up for at least 5 minutes before starting calibration.**

To start calibration:
Calibration starts automatically after defining a new, uncalibrated Preset or after modifying a Preset.

1. Select display **Head B**. Click with the right mouse button on the icon of the display and select **Tools>Presets**.

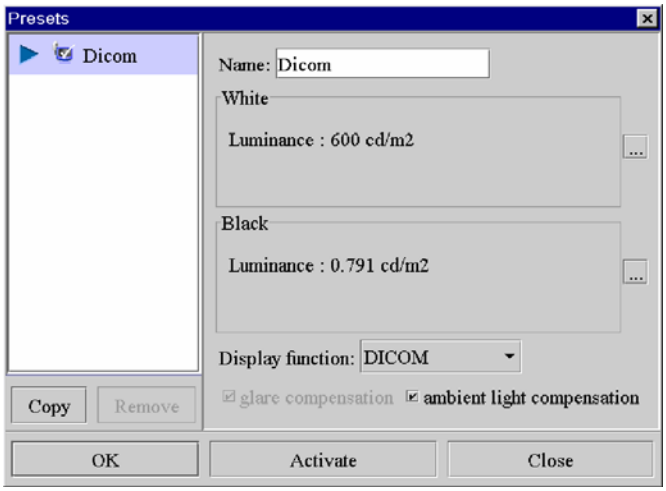

Fig. 7 Default Presets

2. Change the preset as follows:

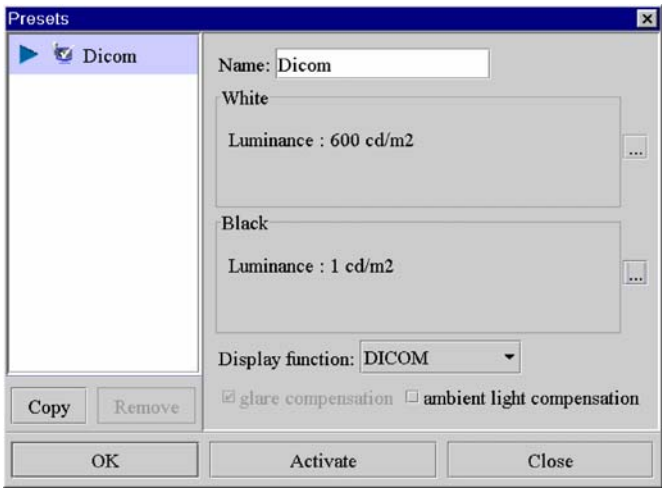

Fig. 8 Required presets for Head B

3. Click **OK**. After 3-5 minutes the following message displays:

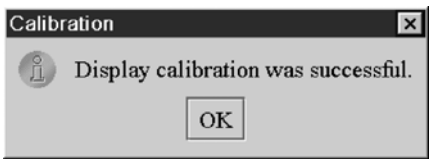

Fig. 9 Message: Successful calibration of Head B

Calibrating Display Head C

1. Select display **Head C**.

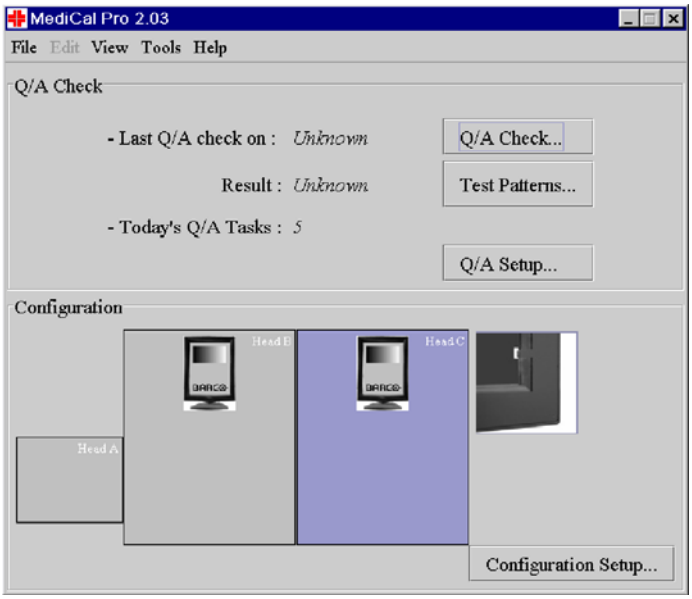

Fig. 10 MediCal Pro: Selecting Head C

2. Click with the right mouse button on the icon of the display and select **Tools>Presets**.

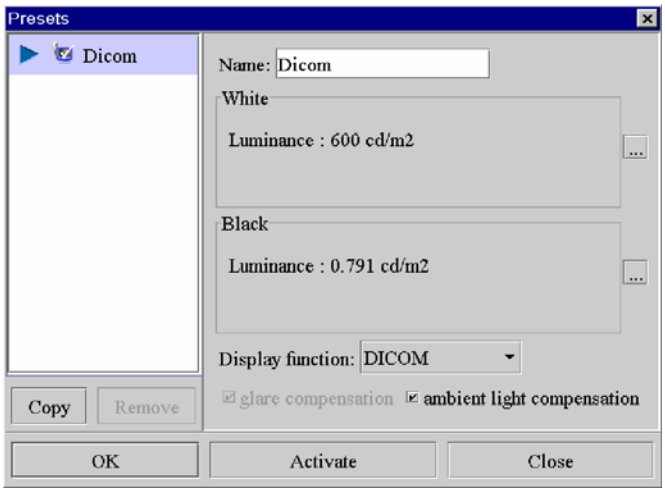

Fig. 11 Default Presets

3. Change the preset as follows:

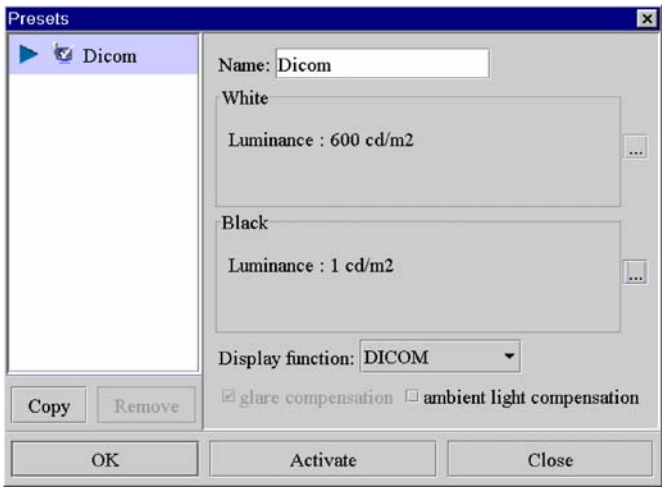

Fig. 12 Required presets for Head C

4. Click **OK**. After 3-5 minutes the following message displays:

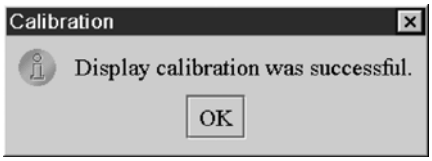

Fig. 13 Message: Successful calibration of Head B

Selecting Luminance Units

1. To select the luminance units select Tools>Options>Application Settings.
2. Select the **General** tab.
3. Select the desired luminance unit.

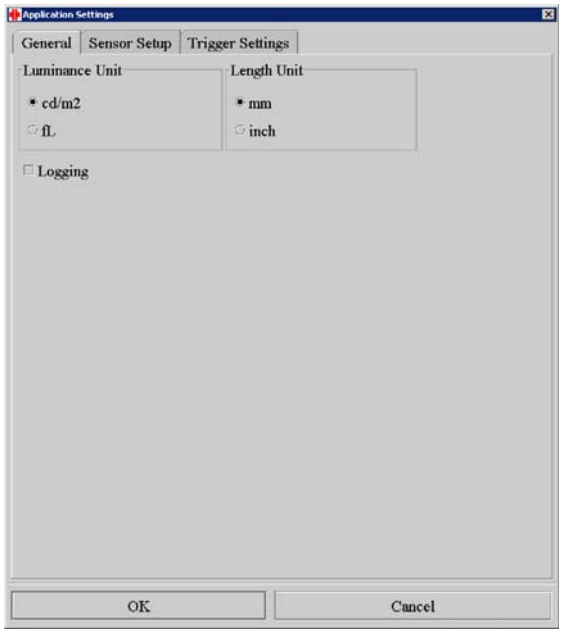

Fig. 14 Application Settings

4. Click **OK**.

Setting up optical sensor list

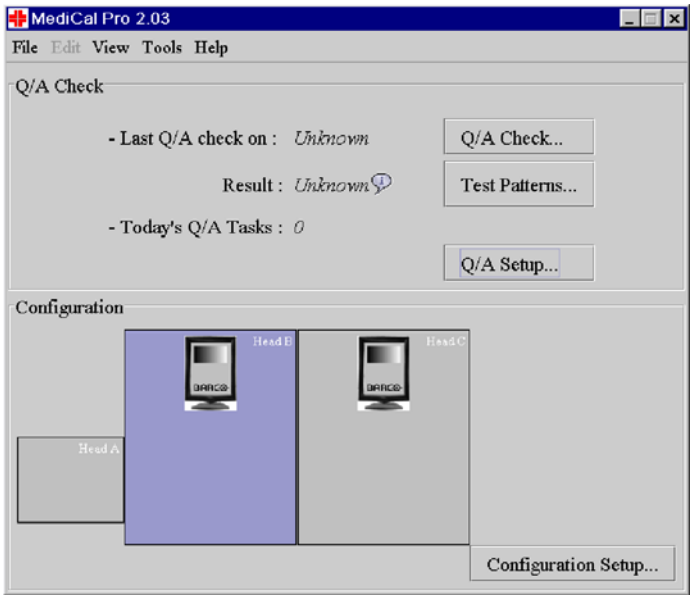

Fig. 15 MediCal Pro: Selecting Head B

1. From the Tools menu, select **Options>Application Settings**.
2. Select the **Sensor Setup** tab.

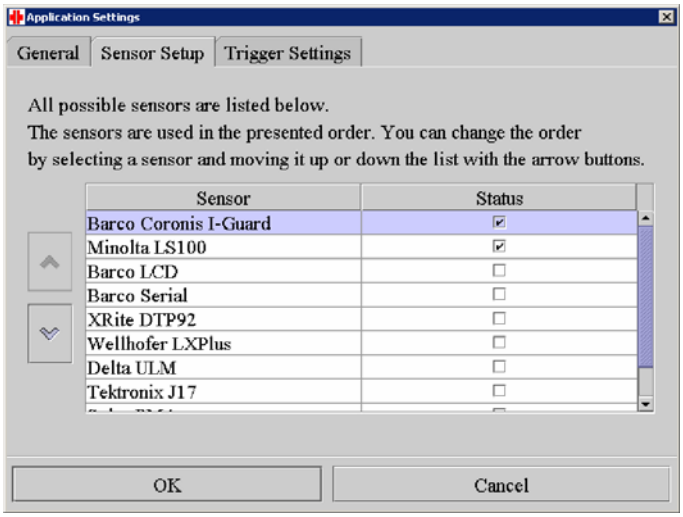

Fig. 16 Application Settings

3. Check the types of sensors used on the viewing station. Do not check the types that are not used.
4. Select e.g. Minolta LS100 and click **OK**.
5. Select **Test Patterns**.

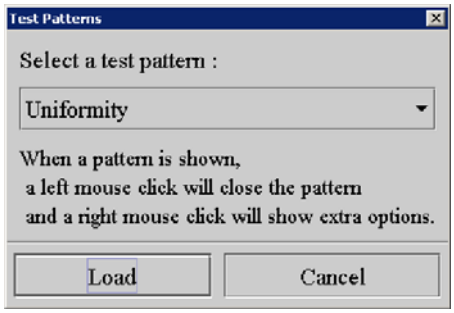

Fig. 17 Test Patterns

6. Click **Load**. Searching the connected sensor starts.

Fig. 18 Searching sensor

7. In the main window click **Q/A Check** to start the check.

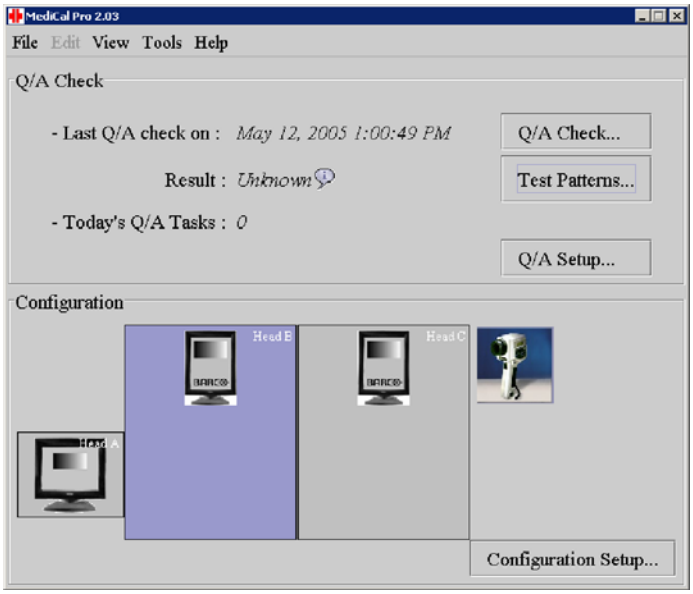

Fig. 19 MediCal Pro: Detected optical sensor

Chapter	Page	Change
3	all	changes to version SMfit Act V3.2 added
6	6-1	new chapter added

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